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FIFTIETH YEAR

PAPER TRADE JOURNAL

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ESTABLISHED IN 1872

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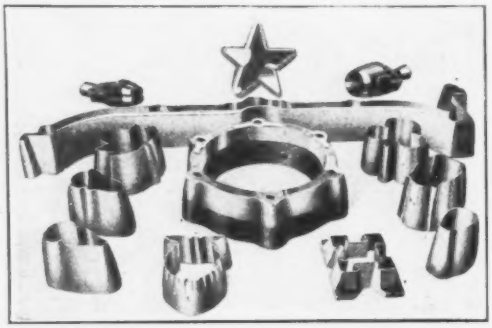

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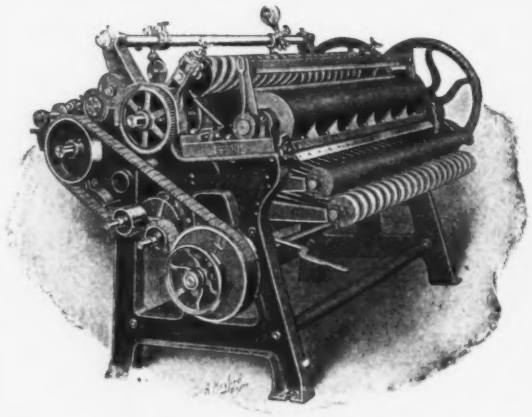

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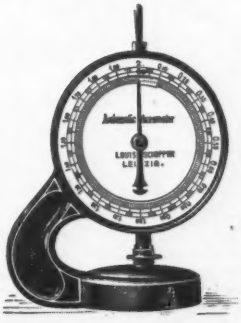

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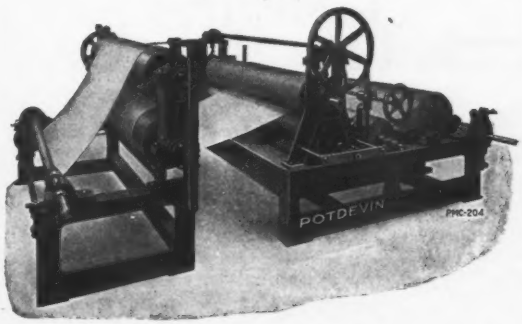

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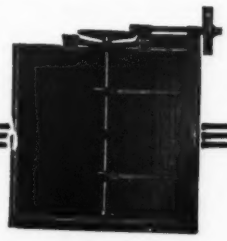

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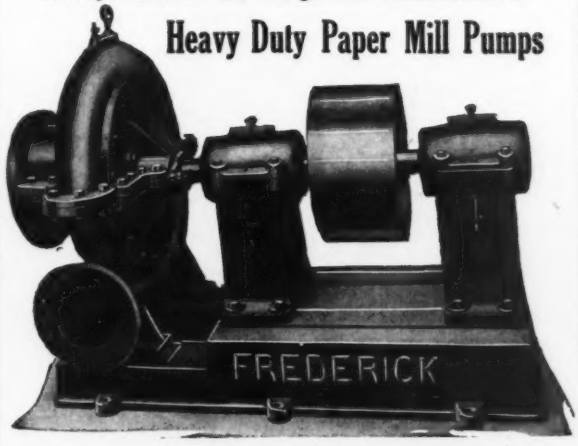

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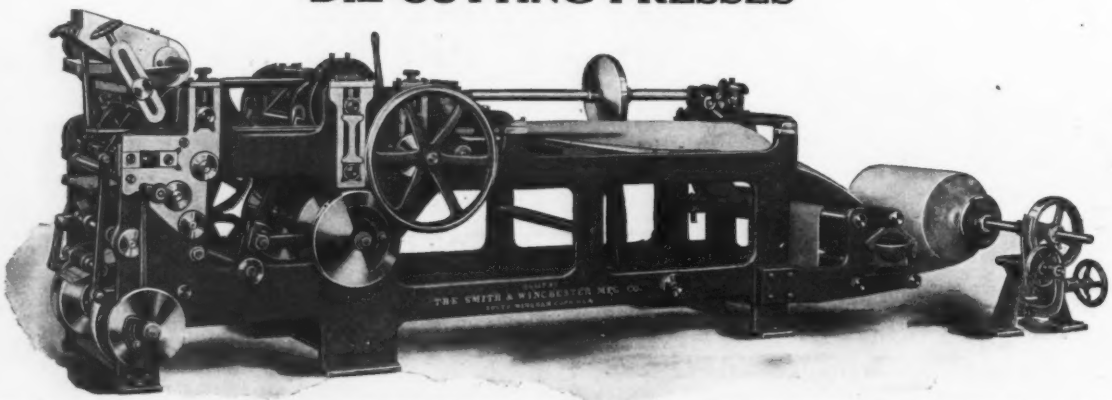

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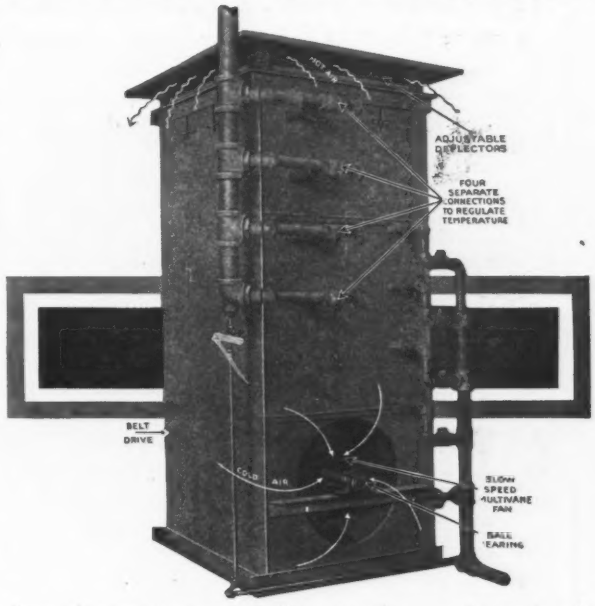

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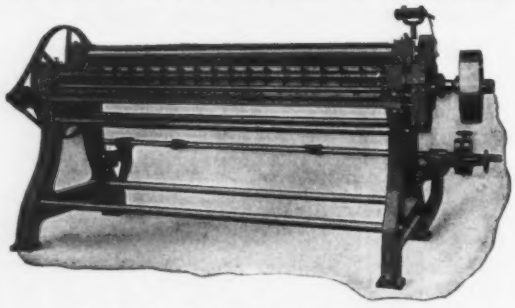

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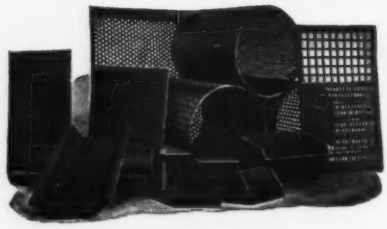

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THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY

FIFTIETH YEAR

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PRODUCTION OF GROUND WOOD FOR THE MONTH OF JANUARY

According to Statistics Just Issued by the Federal Trade Commission Groundwood Mill Stocks at the End of January Equaled 28 Days' Average Output, New Grade Sulphite Mill Stocks Equaled 9 Days' Average Output, Bleached Sulphite Mill Stocks Equaled 5 Days' Average Output, Easy Bleaching Sulphite Mill Stocks Equaled 3 Days' Average Output—Stocks of Other Grades of Pulp.

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 7, 1922.—In connection with the Federal Trade Commission's current statistics of the paper industry, a summary of the monthly reports from manufacturers of wood pulp and other kinds of pulp used in paper making is submitted herewith for the month of January, 1922. The table shows the kind of pulp, the stocks, production, pulp used and shipments for the month. The pulp shipped during each month represents only pulp shipped to a concern different from the one producing it. Loss of production is shown by giving the idle machine time reported by each company from each kind of pulp.

Pulp Production

The following is a tabulation of the production, pulp used by the company producing it, shipments to outside concerns, and stocks of finished pulp, in tons of 2,000 pounds on air-dry basis, for January, 1922, compared with January, 1921, for the operating mills. The average production is based upon the reports covering the years 1917, 1918, 1919, 1920, and 1921, and the average stocks are based upon the stocks carried for the years 1919, and 1920 and 1921.

	Number of Mills	On Hand First of Month	Production for Month	Used During Month	Shipped During Month	On Hand End of Month
Groundwood Pulp:						
January, 1922	150	123,080	109,175	98,719	8,238	125,298
January, 1921	165	129,626	140,999	115,880	7,781	146,964
January, 1920	172	139,304	110,835	126,086	7,020	117,033
January, 1919	157	131,170	122,469	80,720	39,473	133,446
Average	...	.....	115,150	.....	.....	147,073
Sulphite, News Grade:						
January, 1922	62	21,240	61,689	54,685	6,397	21,847
January, 1921	65	17,984	60,934	50,876	7,112	20,930
January, 1920	65	20,046	73,192	64,274	10,022	18,942
January, 1919	58	17,905	61,430	41,452	18,310	19,573
Average	..	.....	60,125	.....	.....	20,685
Sulphite, Bleached:						
January, 1922	33	6,748	34,984	24,912	9,357	7,463
January, 1921	32	6,661	31,335	20,480	6,414	11,102
January, 1920	32	6,810	51,160	27,026	24,725	6,219
January, 1919	28	4,240	42,708	22,935	16,324	7,689
Average	..	.....	39,800	.....	.....	9,507
Sulphite, Easy Bleaching:						
January, 1922	8	868	5,708	4,811	1,098	667
January, 1921	6	1,134	4,549	2,922	1,279	1,482
January, 1920	8	1,314	5,541	3,895	1,836	1,124
January, 1919	6	2,212	4,968	3,452	1,497	2,231
Average	..	.....	6,000	.....	.....	1,346
Sulphite, Mitscherlich:						
January, 1922	6	1,128	6,111	3,566	2,124	1,549
January, 1921	7	2,768	3,897	3,165	466	3,034
January, 1920	7	1,809	7,182	4,479	2,773	1,739
January, 1919	7	1,489	6,392	3,959	2,195	1,727
Average	..	.....	6,125	.....	.....	1,831
Sulphite Pulp:						
January, 1922	21	7,657	17,824	13,331	3,450	8,700
January, 1921	21	7,850	7,474	4,959	1,746	8,619
January, 1920	22	5,753	16,941	11,442	5,737	5,515
January, 1919	20	4,490	12,172	7,264	2,838	6,560
Average	..	.....	13,050	.....	.....	6,499
Soda Pulp:						
January, 1922	28	9,024	30,925	19,515	9,990	10,444
January, 1921	25	6,507	25,446	16,102	7,300	8,551
January, 1920	27	5,672	36,895	20,573	18,260	3,734
January, 1919	28	3,395	32,503	21,031	10,571	4,296
Average	..	.....	29,800	.....	.....	6,931
Other than Wood Pulp:						
January, 1922	5	178	505	525	13	145
January, 1921	5	119	719	703	..	135
January, 1920	5	240	795	752	72	211
January, 1919	6	252	628	744	23	113
Average	..	....	800	...	..	154
Total—For All Grades:						
January, 1922	..	169,923	266,921	220,064	40,667	176,113
January, 1921	..	172,649	275,353	215,087	32,098	200,817
January, 1920	..	180,948	302,541	258,527	70,445	154,517
January, 1919	..	165,153	283,270	181,557	91,231	175,635
Average	..	.....	270,850	.....	.....	194,026

Total Stocks of All Grades

Total stocks of all grades of pulp in the mills on January 31 amounted to 176,113 tons. Mill stocks of Easy Bleaching Sulphite and Other Grades decreased during the month.

Ratio of Stocks to Average Production

Comparing the stocks on hand at the domestic pulp mills at the end of the month with their average daily production based on the reports covering the years 1917, 1918, 1919, 1920, and 1921, the figures show that:

Groundwood pulp stocks equal 28 days' average output.
News grade sulphite mill stocks equal 9 days' average output.
Bleached sulphite mill stocks equal 5 days' average output.
Easy bleaching sulphite mill stocks equal 3 days' average output.
Mitscherlich sulphite mill stocks equal 6 days' average output.
Sulphate mill stocks equal 17 days' average output.
Soda pulp mill stocks equal 9 days' average output.

Loss of Production

Grade	Lack of Orders 1922	Lack of Orders 1921	Repairs 1922	Repairs 1921	Other Reasons 1922	Other Reasons 1921	Total 1922	Total 1921
Ground Wood Pulp:								
Number of grinders	38	33	26	94	505	371	569	498
Total hours idle	14,280	5,390	6,073	12,677	*141,091	83,817	61,444	101,884
Sulphite, News Grade:								
Number of digesters	50	28	14	40	112	23	176	91
Total hours idle	2,740	8,375	434	5,167	17,330	1,034	20,512	14,576
Sulphite, Bleached:								
Number of digesters	52	49	1	3	12	12	65	64
Total hours idle	11,960	10,500	20	464	9,798	505	21,778	11,469
Sulphite, Easy Bleaching:								
Number of digesters	1	10	0	1	0	2	1	13
Total hours idle	168	2,209	0	184	0	255	168	2,648
Sulphite, Mitscherlich:								
Number of digesters	0	17	7	12	0	5	7	34
Total hours idle	0	7,227	42	2,295	0	1,536	42	11,058
Sulphate Pulp:								
Number of digesters	9	22	9	9	4	6	22	37
Total hours idle	1,932	8,344	976	2,897	672	2,496	3,580	13,737
Soda Pulp:								
Number of digesters	74	76	0	5	0	18	74	99
Total hours idle	13,095	15,376	0	1,313	0	4,182	13,095	20,871
Other Grades:								
Number of digesters	7	0	0	1	0	0	7	1
Total hours idle	3,592	0	0	24	0	0	3,592	24
Total number of grinders and digesters	231	235	57	165	633	437	921	837
Total hours idle	47,775	57,421	7,545	25,021	168,891	93,825	224,211	176,267

*Includes 126,564 hours due to water and power conditions.

Mill stocks of "other than wood pulp" equal 5 days' average output.

Total mill stocks of all grades equal 16 days' average output.

Loss of Production

The idle machine time of grinders and digesters reported to the Commission for the month of January, 1922, is shown in detail in the attached tabulation. The reasons tabulated for lost time are lack of orders and repairs. "Other Reasons" include water conditions, etc. The time lost in January, 1921, is shown by grades and reasons for purposes of comparison. These figures do not include 16 mills not in operation.

Waste Paper Packing Co. Formed

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, Mich., March 7, 1922.—The Waste Paper Packing Company, capital, $100,000, has been organized in Kalamazoo. This is the concern that purchased the plant of Oscar Gumbinsky & Brothers, East Frank street. A general business in all kinds of paper stock and metals will be conducted.

Friday afternoon the stockholders held their first meeting and officers and directors were elected as follows: President, Felix Pagenstecher; vice-president, Charles Clarage; treasurer, C. Allen Fox; secretary, William Allen; general manager, Louis Rosenberg; directors, the above and Joseph E. Brown and W. B. Milham.

Before the plant begins operations again, it will have undergone a complete overhauling and refitting. The whole interior is being painted white with all piping in black and the sprinklers a bright red. Adequate toilet facilities for both men and women are being installed and in addition there will be a rest room and dining room for the help. General Manager Rosenberg says that the company plans to serve a light lunch each day to the help.

In addition to interior and exterior repairs to the building, all machinery and equipment is being overhauled and brought up to the highest state of efficiency.

New York Central sidings insure adequate shipping facilities. Seventeen cars can be spotted for loading and unloading at one time.

"We intend to do a general business in paper stock and metals," said General Manager Rosenberg. "The opinion that prevails in certain circles that we intend to supply the Bryant Paper Company alone is erroneous. While that concern will require 30,000 tons of stock annually, we will be able to care for its needs and at the same time handle a big outside business. When running at capacity the plant will require the services of about 100 employes."

Mr. Rosenberg says he is looking for a big revival in the paper industry during the last six months of the coming year.

"I base my opinion on statements made by prominent Chicago jobbers," he said. "They declare the break will come during the summer and are preparing to meet the demands. While our warehouses are at present practically empty, I have placed orders for a heavy supply of stock and it will begin arriving within the next thirty days. Then we will have enough to do to keep us running at capacity."

The sale of the Kalamazoo plant does not mean the retirement of the Gunbinskys from the paper stock market. They will continue to operate their large Chicago sorting plant as in the past. Herman Gumbinsky goes to Chicago immediately to assist in the management of the concern's large woolen mill. Later in the year he will make that city his home permanently.

Missisquoi Pulp Co. Increases Capital

[FROM OUR REGULAR CORRESPONDENT.]

MONTPELIER, Vt., March 7, 1922.—The authorized capital stock of the Missisquoi Pulp and Paper Company has been increased from $300,000 to $1,000,000, according to a certificate of amendment to the articles of association filed with the secretary of State. This stock is divided into 7,000 shares of common and 3,000 shares of preferred, all at $100 par value per share.

Union Bag Earns $400,000 Last Year

The annual report of Union Bag and Paper Corporation, for 1921, to be published later in the month, will show net earnings of approximately $400,000, after taxes and charges but before charge-off for inventory depreciation and dividends. It is estimated that charge-off for inventory depreciation will require about $750,000, while 8 per cent annual dividend on the $14,977,850 capital stock required $1,198,228.

This compares with net earnings, after all charges, and available for dividends in 1920 of $3,374,926, equal to $23.20 a share on the stock.

In common with other paper companies, Union Bag did not write off depreciation in 1920, for the reason that the industry was one of the last to deflate, and at the end of that year there really was no great depreciation in value. If Union Bag writes off $750,000, as contemplated, it will have brought its inventories of pulpwood and merchandise down to market, with indications that before the end of 1922 prizes of both items will be considerably higher.

In handling payment of dividends last year, a special reserve of $1,200,000 was set aside out of 1920 earnings, to insure their payment throughout 1921. Action of directors last week in reducing quarterly payments on the stock from 2 percent to 1½ percent, was deemed necessary in the interests of conservatism, until it was demonstrated that company could earn its dividend requirements this year.

The industry just now is dull, though this is usual at this time of year. Stocks in the hands of jobbers are down to bare needs, and any considerable buying in the trade would start a movement which it is believed might carry prices higher and call for a large tonnage. It is believed that the spring will see a revival of buying, as consumption of bags and wrapping paper will naturally tend to improve as the general business situation gets better.

Inventories at the close of 1920 stood at $4,683,000, the largest on record, of which almost $3,000,000 was in the finished product. The 1921 annual statement will show that good progress was made in reducing the finished product, but that the pulpwood item did not decline materially, due in large part to commitments made in advance.

The action of the St. Maurice Paper Company in reducing the dividend on its capital stock from 2 percent quarterly to 1¼ percent following the cut in dividend by the parent company, will mean only approximately $150,000 annually to Union Bag.

The latter owns 62 per cent of the $4,879,000 capital stock of the St. Maurice company.

Charge Unfair Competition Against Typothetae

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 8, 1922.—The Federal Trade Commission has revived its complaint of unfair competition against the United Typothetæ of America, J. Linton Engle, of Philadelphia, its president and other officers, its branch and affiliated organizations and their members. The complaint has been amended and alleges that the establishment by the respondent of a uniform cost accounting system for the use of printing establishments is not merely a system of cost finding but a device, the intent and purpose of which is to establish a uniform scale of prices in the printing industry throughout the United States, to suppress competition and to create a monopoly.

It is alleged that 5,000 members of the Typothetæ are now using its standard cost system and its standard price list. The complaint charges further that the Typothetæ has compelled manufacturers and dealers in printers' supplies to pay gratuities as a condition precedent to the sale of supplies to its members. This money is collected extensibly for educational purposes but mainly, the Commission alleges, to induce employing printers to use the uniform system of cost accounting and the standard price list, so that the evils of "ignorant and ruinous competition" may be eliminated.

BOOK PAPER PRICES EASIER IN PHILADELPHIA MARKET

This, However, Applies Only to the Distributors and Does Not Affect the Mills—In All Other Grades Prices Continue Rather Steady and Demand Shows Slight Increase—Agitation for the Long Price List Seems Less Active—Much Attention Given to Changing Conditions in the Paper Distributing Trade Recently Outlined in the Paper Trade Journal—Universal Waste Products Co. to Resume.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, March 7, 1922.—A slight easing off in the price of book papers, more, however, on the part of the distributors than on the part of the mills, was the only outward development of general interest in the fine paper division of the trade during the week. In all the other grades, prices were rather steadily maintained, and demand showed some slight increase over the preceding week, although it is still rather spotty in character. In the coarse paper field, business is much less active so far as the receipt of orders is concerned, but much more active in the pursuit of them than has been the case since early in February. There are still rather large supplies of tissues, screenings, silk fibers and the lower grades on the market, but fortunately demand has been sufficient in recent weeks to cut down the stock in the ware room of the distributors to the point where they are at least beginning to take interest in the rather numerous offerings which are being made by mill representatives apparently very eager to get business, yet not quite to the point of making large price concessions in order to secure it. The paper stock market for both old papers and rags moves along very evenly in its recent quietness, some of the dealers reporting a continuance of the comparative activity in the market for soft white, but others saying that demand for this grade, the one which had enjoyed some activity, had fallen off. There is virtual stagnation in the market for mixed and common, although notice sent out during the week by the Philadelphia Paper Manufacturing Company that its price would be reduced a dollar a ton at the close of the week, had some effect in stimulating sales.

Brighter Days Dawning

But the forecast, as it can be made after a trip among all the leading distributors, is that brighter days are dawning at least for the mill representative. It is true that the distributors are not enjoying a very good business at this time, but it is also true that they have pretty well succeeded in disposing of the vast stocks which many of them were carrying at the close of last year and the beginning of this year, and while of course they proposed to buy very conservatively, yet their stock on hand generally has reached such a low point that it must be replenished. Despite the fact that business as it exists in these early March days, when a revival was predicted, is not up to the level indicated by even the conservative optimists, there has been no decline in the confidence that sometime in the near future active sale will begin and the foresighted distributors realize that the house which has in stock the goods to deliver will get the business. It is precisely because of the falling prices and the slow business that the printer buyer of fine paper hesitates perhaps for weeks before closing the contract, but then expects deliveries to be made, if possible, the very next day.

Long List Agitation Less Active

The distributors are hearing very little from the general run of their printer trade about the long price list, but the small group of active members of the Typothetæ, who are endeavoring to galvanize life into the issue, are making efforts to keep the matter alive. In this connection they propose to issue during the week a new edition of their own private long list called by them the retail price list, in which a number of changes will be made. The numerous errors of omission and commission in the first edition will be corrected and an entirely new arrangement of the text matter be made so that there can be brought to the front of the volume the four local firms, not members of the Philadelphia Paper Trade Association, which have agreed to establish the long list it is said. The other distributors will be relegated to the rear pages. Passing interest was shown by the paper distributors, but quite active interest by the printers in the move of Coy, Hunt & Co., New York, in spreading throughout the city its prices on the long list basis.

Interest in Changing Conditions

Very thoughtful attention is being given by the trade to the proceedings as reported in the PAPER TRADE JOURNAL, of the Paper Trade Association meeting recently held in the Chamber of Commerce and the object of which was to call the attention of the Philadelphia trade and eventually of the trade brethren in all the other centers of distribution to the changing conditions and the very urgent necessity of cutting down overhead or in some other way of bringing about a greater difference than now exists between cost and selling price of paper so that business can profitably be done and insurance secured against the writing off of values through depreciation. There is consensus of opinion that the subject is worthy of the closest attention of the entire paper distributing industry.

Novel Points in Paper Stock Suit

Suit which has just been brought by Wm. J. McGarrity of the Penn Paper and Stock Company raises a point which is novel to this city and is not known to have a precedent so far as an individual firm is concerned. Mr. McGarrity has filed a claim against the United States Railroad Administration for $45,000 and upwards, the allegation being that he was compelled to load at his own expense of something like 50 cents a ton some 90,000 tons of paper stock freight, which he claims should have been defrayed by the railroad administration. The claim covers an extended period. Mr. McGarrity's averments are that the rules of the U. S. Commerce Commission required him to deliver the freight on the railroad platform, but that actually he was compelled on penalty of having his freight rejected, to place it in the care at the additional cost to him of the amount claimed. He is guided in entering his suit largely by the precedent of the associated dealers of New York, who entered a somewhat similar suit against the railroad, lost it in the lower courts, but won on an appeal to the Superior Courts, from which, however, it has been taken by the railroad to the U. S. Supreme Court, where it still is pending. Representing Mr. McGarrity is E. W. Wilson of Beever Jones & Wilson. The case is being watched with interest by the paper stock men and it is possible that similar actions will be brought.

To Resume Grading of Paper Stock

Anticipating greatly improved conditions in the paper stock market in the near future, the Universal Waste Products Company, which has a tremendous plant on the Parkway and 25th and Callowhill streets, will shortly resume the grading of stock which it abandoned last fall when its plant, large as it is, was congested with supplies of all kinds of paper at the time apparently beyond the possibilities of mill consumption for many months to come. Towards the close of last year, the firm had on hand something like 15,000 tons of paper stock of every description, but since then it has been able to dispose of so large an amount that it again has the physical opportunities for the grading of stock, and shortly there will be employed a large number of sorters for the purpose. Meanwhile the company has found entirely successful its plan of shipment by boat from Snyder avenue wharf down the Delaware, up the Schylkill and through the canal locks to Manayunk. There are now being operated three large canal boats each week running from pier 78, South Wharves and because of the open winter, there

has virtually been no interference with these water shipments through the often ice congested Horseshoe Bend in the Delaware. Manager Wm. G. Biles feels assured that the service has proved itself and is planning to increase it.

Visitors From Over the Seas

Two visitors from over the seas began during the week making rounds of the paper distributors, paper mill and paper consuming industries of the city which will continue for the next month or more. The one from farthest away is Y. N. Chen of Nanking, China, who, however, has been in this country for several years, is a graduate of Columbia University, spent more than a year on the lecture platform, traveling all through the United States and through Canada and who now has his face set homeward bound, but who proposes to spend several weeks in Philadelphia and several months in the United States before he returns to his native land. The other is Costa Smith, representing the A. B. Sveriges Litografisk Tryckerier of Stockholm. A 40,000,000 kron, or $10,000,000 organization of paper box makers, paper makers, printers, lithographers and engravers, controlling 15 individual plants scattered throughout Sweden. Mr. Chen believes that he can accomplish a larger measure of improvement for his fellows in the homeland by popular education through paper and ink than in following the course of so many of his fellow students, who upon graduation from American institutions enter diplomatic life and he is now studying American paper manufacturing and printing processes so that upon his return to China, where he is the publisher of the Nanking *Gazette*, he can reach the people not only through the printed page but by the word of mouth of an observer who actually has seen and experienced. Mr. Chen points out that with the recent adoption of an alphabet for the Chinese language and the use of the phonetic system, millions of his countrymen, who before were illerate, have, since the old order passed and the Republic supplanted the Empire, become voracious readers. His point of view is that though China has 4,000 years of history and had relationship to both the printing and the paper making craft, for many, many years, it still can learn much from the occident and that the opportunities today in the new China are limitless. He refers interestingly to the regard which the Chinaman has for every piece of paper containing a written or a printed word, pointing out that even Chinamen unable to read or write, had such reverence for paper bearing a message that under no circumstances will they destroy it. Mr. Chen, like Mr. Smith proposes to visit the Philadelphia paper mills to get first hand knowledge of American business.

General Philadelphia Trade News

H. E. Ramsen, for the last eleven years associated with the Whitaker Paper Company came to the city during the week to become office manager of the headquarters in the Crozer Building, Broad and Chestnut streets, which is being operated, under the Smith-Dixon division of the Whitaker Company, Baltimore, Md. Mr. Ramsen began his association with the company more than a decade ago as salesman from the home office in Cincinnati, thereafter served more than three years with the Baltimore division and for the last two years has been assistant manager of the branch in Indianapolis.

A booth has been taken over by the Enterprise Paper Company, 3rd and Callowhill streets, in the Third Regiment Armory for the Confectioners' Exhibition to be held March 13 to 18. Demonstration and exhibition under the management of sales manager, A. B. Kehr and three demonstrators will be made of the products of the following paper companies, The Grand Lake Company, New York, bags; Paper Utilities Company, New York, bon bon cups, tulip cups, sundae cups and medicinal receptacles and finger bowls; The Mountain Mill Paper Company, Lee, Mass., high grade grease-proof parchment papers; Purity Paper Container Company, Baltimore, paper cans; The National Waterproofing Company, Camden, parchments, glassine and wax papers. The Enterprise Paper Company is the distributor for eastern Pennsylvania, Delaware and south Jersey of the Purity Paper Containers' Products.

Trade visitors of the week included Saul Rest of the Hudson Trading Company, New York; Benjamin Fitzgibbons of D. S. Walton & Co., New York; Edwin Garrett of the Granogue Mill, Chester County; T. J. Donoghue of the Warren Manufacturing Company; Frank J. McPadden of Foley Paper Mills Company, Inc., Blossvale, New York and J. M. S. Ewing of The Bayless Manufacturing Company, New York.

Congratulations are awaiting the return of Daniel I. Murphy, widely known in paper stock circles, who is now on a honeymoon in the south with headquarters at Hot Springs from which he will return in time for the Easter holidays. Mr. Murphy married Mrs. Regina Lyons of Hollis, Long Island on Tuesday at a Nuptial High Mass at the Cathedral, Logan Square.

Edward D. Hemingway of Hemingway Company, is sojourning for a fortnight at Fort Myers, Florida.

National Waste Material Dealers to Meet

The annual meeting of the National Association of Waste Material Dealers, Inc., will be held March 15, at 10 o'clock at the Hotel Astor. The election of a president for the term of one year and the election of twelve directors for the term of two years will take place in addition to whatever additional business may legally come before the meeting.

Inasmuch as each division of the Association will elect a chairman for the fiscal year ending March 24, 1923, considerable interest should be manifest in the meeting, and in fact a good attendance is expected in spite of the rather dull business which now obtains in most quarters.

The Ninth Annual Banquet of the Association will be held at the Hotel Astor, on the evening of Wednesday, March 15, and from the reservations already made a good attendance is assured for the affair. The North Ball Room of the Astor will be the scene of the banquet and since the space there is limited members who desire to make sure of satisfactory seating arrangements should communicate with the Secretary at an early date. Tickets are $10.00 each.

A reception will be held from 6.30 to 7 o'clock and dinner will be served at 7 P. M.

The Paper Stock Division will meet at the Astor on Tuesday, March 14, at 10 A. M., for the election of a chairman to hold office during the Association's next fiscal year and for such other business as it may be expedient to discuss at that time.

The Waste Paper Division will meet at the Astor on Tuesday, March 14, at 11 A. M., to elect a chairman for the year ending March 24, 1923 and to consider among other matters of importance a new classification of waste papers.

A meeting of the board of directors will be held at association headquarters, Times Building, at 4.30 P. M., Tuesday, March 14, at which time the members having matters to present to the board may present them in writing. If possible, however, such business should be presented to the secretary several days prior to the meeting.

The nominating committee has renominated Frank C. Overton, of Castle, Gottlieb & Overton, for president. The following directors have been nominated: Louis Birkenstein, S. Birkenstein & Sons, Inc., Chicago; H. H. Cummings, William H. Cummins & Sons, New York; Robert Johnston, Jr., General Paper Stock Company, St. Louis; E. J. Keller, E. J. Keller Company, New York; Henry Lissberger, B. Lissberger & Co., New York; Alex Luria, Luria Bros. & Co., Inc., Reading, Pa.; Herman Muehlstein, H. Muehlstein & Co., New York; Daniel I. Murphy, Daniel I. Murphy, Philadelphia; Ivan Reitler, Great Western S. & R. Company, Chicago; James Rosenberg, American Woodpulp Corporation, New York; Geo. B. Smitheman, Geo. B. Smitheman, Inc.; Philadelphia; Clarence B. White, White & Bro., Inc., Philadelphia.

MANY SIGNS OF IMPROVEMENT IN THE TORONTO PAPER TRADE

While Business Still Continues Spotty the Period of Liquidation Is Rapidly Running Its Course and Causing a Better Feeling to Exist in the Trade—Judgment Is Reserved in Case Against the Fort Frances Pulp & Paper Co. for Refunds on Paper Sold to the Newspaper Publishers During the War—Awards Made in Safety Contest Conducted Recently by Ontario Mills.

[FROM OUR REGULAR CORRESPONDENT.]

TORONTO, Ontario, March 6, 1922—Safe, sound buying is beginning to characterize the paper market more and more. Business, which had been dull for some days, picked up during the latter part of the week although it is yet "spotty." The period of liquidation is rapidly running its course, however, and there are many signs of improvement in all lines. Blueprint and building papers are in much more active demand owing to promising structural activity in the larger centres. Book papers are enjoying a larger call and manufacturing stationers and envelope producers report an increase in business as spring approaches. Most plants are now operating at nearly one hundred per cent capacity.

News print is in good demand and there is every indication of it getting stronger. Advertising is coming in more freely and larger issues of daily papers are being put out than for some months past. In other lines, there is also evidence of returning prosperity, which, while it may be slow is, nevertheless, on the way.

Judgment Reserved in Fort Frances

Judgment was reserved in an interesting case heard in Toronto during the past week when the Fort Frances Pulp and Paper Company, of Fort Frances, was sued by several Western Canada publishers for refunds totaling $124,136, alleged to have been paid the company in excess of the prices fixed by the Dominion paper control tribunal during the war. The Fort Frances Company entered a counter claim for $2,449,214, the difference between the price fixed by the Paper Controller, the late R. A. Pringle, and the figure that could be obtained at the time in the open market when news print sold at such a high premium. The company, at the head of which is E. W. Backus, contends that the legislation creating the news print control was *ultra vires* of the Dominion. After hearing some evidence from John M. Imrie, of Edmonton, former manager of the Canadian Daily Newspapers' Association and others, judgment was reserved by Mr. Justice Riddell.

Making Inquiries Regarding Concessions

In connection with the suit, it is interesting to note that W. D. Black, M. P. P. for Addington, is asking the Ontario government, if E. W. Backus, who some months ago obtained the English pulpwood concession of three thousand squire miles, has full knowledge that the former obligations of Mr. Backus in respect to the Lake of the Woods grant were never carried out. He also requires if the government received the resolution, which was passed by the daily publishers of Ontario quite a long while ago, that a number of papers were threatened with suspension of publication through the then shortage of news print and that, in view of the Backus attitude toward the domestic requirements it was not in the public interest that the Backus firm should be granted any pulpwood or further power concessions, and that all pulpwood concessions previously granted, though they may be in default, should be cancelled forthwith.

Many Firms Installing New Barkers

The Canadian Barking Drum Company, Limited, Toronto, has recently installed drum barkers in several plants in Northern Ontario. The Mattagami Pulp and Paper Company, at Smooth Rock Falls, has put in two barkers in its lately enlarged wood room and the Temiskaming Pulp and Paper Company has put in one at Haileybury in its new forty ton groundwood plant. The Hawk Lake Lumber Company, of Montieth, Ont., which takes out large quantities of pulpwood for shipment is also installing a drum barker for rossing and will ship out the barked wood. Contractors supplying pulpwood to mills in both Ontario and Quebec report that it is becoming very difficult to dispose of wood in the rough and they are rossing all the product in order to save freight charges and other expenses.

Awards Made in Safety Contest

The contest for the silver trophy and commemoration flags among the pulp and paper mills of Ontario, of which there are some forty in number, closed after the first year and the directors of the Ontario Pulp and Paper Makers' Safety Association has just made its award. The contest was divided into two classes, mills employing over two hundred hands and those operating with less than this number. The Dryden Pulp and Paper Company, of Dryden, Ont., was the winner in the first class, the record showing 24 non-fatal accidents, with a loss of 374½ days, or 2.31 days lost time per full time worker. In the other class, the Don Valley Paper Company, of Toronto, secured the award, with one non-fatal accident with a loss of one day, or .028 day lost time per full time worker. A. P. Costigane, secretary and engineer of the Ontario Pulp and Paper Makers' Safety Association, says much interest was taken in the competition and a great impetus was given to Safety work in the plants. The contest will be continued this year. There will be presented to each of the winning mills one shield and one flag. The latter will be held as the permanent property of the victors, but the trophies will be retained only for twelve months and suitably inscribed.

New Position for Mr. Winlow

George C. Winlow, who for the past twenty years has been a member of the sales staff of the Canada Paper Company, Toronto, has been appointed sales manager of the Lincoln Paper Mills, of Merriton, with headquarters in Toronto and has entered upon his new duties. He is widely known in the trade. The Lincoln Company will develop a book, writing, envelope and sulphite bond paper department which it started during the past year, and will continue its former lines such as sulphite and rope manila, tag manila, flour sacks, fibre and kraft papers. It is understood that the warehouse in Toronto will be closed at an early date and only a sales office maintained while all shipments will be made direct from the mill

New Wholesale Firm Launched

A new paper company has been formed and started business in Toronto at 71 Bay street, known as the Samuel-McDermott Paper Company, which will handle all kinds of wrapping paper, kraft, greaseproof, glassine, etc. The members of the company are S. Samuel, for several years associated with the Toronto sales staff of the Lincoln Paper Mills, of Merriton, Ont., and T. H. McDermott, for the last thirteen years manager of the Toronto branch of the same firm, and previous to that accountant. Both gentlemen are thoroughly familiar with the wrapping paper business and report they have got off to a splendid start with most encouraging prospects.

Troubles Over Nipigon Power Sale

The troubles of the Ontario government in connection with the Hydro-Nipigon Power Development are multiplying and the interest charges on the capital account of the work are twice as much as the rate at which power is being sold. The interest charges are being added to capital cost and are forcing up the rate that must ultimately be charged for power. One of the difficulties in connection with the Nipigon system is that the Great Lakes Pulp and Paper Company, of Fort Williams, did not build its big paper plant and operate with Hydro power as was expected. Nearly five years ago the Great Lakes Company got valuable pulpwood limits from

(*Continued on page* 22)

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BLEACHING AND
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SULPHATES

Write or Wire us for
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A. J. PAGEL & CO., Inc.

347 Madison Avenue New York City

HOWARD SMITH PAPER MILLS SHOW DECREASE IN PROFITS

Net Earnings Available on the common stock for 1921 were $351,631 compared with $891,899 the Previous Year—Sales Were $2,908,544 Against $7,456,401 in 1920 and $3,744,858 in 1919—Canadian Forestry Association Applies for Increase in Annual Gift from $500 to $5,000—Considerable Progress Reported in Paper Reciprocity Treaty Between Canada and Australia.

[FROM OUR REGULAR CORRESPONDENT.]

MONTREAL, Que., March 6, 1922.—The Howard Smith Paper Mills, Ltd., whose mills are at Beauharnois, has just issued its third annual report. This shows that for the year ending December 31, 1921, there was a sharp reduction in earnings. Profits amounted to $611,793 as against $1,087,381 a year ago, and after deduction of bond interest and preferred dividends, but before depreciation, net earnings available on the common stock were $351,631 compared with $891,899 the previous year. After common dividends, surplus was $53,699. Last year there was taken out $196,216 for depreciation, $16,932 securities write off and $91,018 tax reserve, leaving surplus of $366,833.

Profits and loss account compares as follows:

	1921	1920
Profits	$611,793	$1,087,381
Other inc.	1,519	2,518
Total	$613,312	$1,089,899
Bond int.	141,681	78,000
Pref. divd.	120,000	120,000
Net earnings	$351,631	$891,899
Com. divd.	297,932	220,800
	$53,699	$671,099
Depreciation		196,216
Write off		16,932
Tax res.		91,018
Total	$53,699	$366,833

The balance sheet shows total assets at $9,840,455 compared with $9,856,106 the previous year. Plant is shown at $7,058,789 including security discount account, against $6,318,974 previous year, exclusive of the latter item, but including timber limits, inventories of stock on hand at mills are $1,226,744 compared with $951,349. Accounts receivable are down to $431,746 from $1,124,675. Timber limits are shown as a separate item this year at $753,276. Among liabilities, accounts payable have been reduced from $931,414 to $404,229. There is shown a $100,000 more owing to banks, which item is shown at $350,000. Reserves are $850,587 compared with $1,005,777 in the 1920 balance sheets. Balance owing on timber limits has been reduced from $500,000 to $387,397.

C. Howard Smith, president, in his remarks says that sales are materially down, being $2,908,544 against $7,456,401 in 1920 and $3,744,858 in 1919. Export market showed little demand in the year. Inventories have been put on a replacement basis so far as possible. He reviews the year's company developments, refers to the strong position of the plants with added capacity, and speaks hopefully of the future.

Forestry Association Seeks Grant

The Canadian Forestry Association which has headquarters in Ottawa has applied to the Government of the Province of Quebec for an increase in the annual grant from $500 to $5,000. For years past the association has carried out extensive educational campaigns all over Canada to secure popular co-operation in the protection of forests from fire. The association states that in the Province of Quebec it has spent thousands of dollars for field lectures, motion pictures, the operation of its lecture cars and forest exhibits car and the general maintenance of its educational propaganda.

Paper Exports to Australia

During the past few weeks considerable progress has been made towards bringing about a reciprocity treaty between Canada and Australia whereby Canada's pulp and paper products will compete on even terms in the Australian market with the products of the United Kingdom. At the present time news print from the United Kingdom has a preference of $14.16 a ton in the Australian market, and other classes of paper have a preference of 10 per cent ad valorem. The Hon. G. F. Pearce, Minister of Defense for Australia, who attended the recent conference at Washington, has been in Ottawa and has seen the Government on the question of preference and a deputation from the Pulp and Paper Association has also interviewed the Government on the same matter. This deputation consisted of Geo. M. McKee, president; C. Howard Smith, J. Rolland, J. H. Thomas, John F. Taylor and Edward Beck, secretary. Since then Premier King has been in communication with the Australian Government and it is expected that a satisfactory arrangement will be arrived at. For the year ending June 30, 1921, Australian imports of news print amounted to $17,303,750 while the total amount of paper of all kinds imported amounted to $21,258,087. Since the preference in favor of Great Britain and excluding Canada went into effect the imports from Canada have been steadily declining.

SIGNS OF IMPROVEMENT IN TORONTO

(*Continued from page 20*)

the province on conditions that $200,000 be spent the first year, $350,000 the second year, and $250,000 the third year erecting a plant. In 1918, a new agreement was entered into, whereby a clause was inserted, which stated that the company was not required to do anything until the Hydro-Commission was in a position to supply the company with power, for all purposes which time had not yet arrived. This year an application for the cancellation of the concessions of the company was made but, as stated previously in the PAPER TRADE JOURNAL, a new agreement has been entered into between the company and the Ontario government whereby the former will spend $2,000,000 on a paper mill within the next three years and the government will see that Nipigon power is sold to the Great Lakes Company at a reasonable rate.

General News of the Trade

C. J. Armbruster, sulphite superintendent of the Lincoln Paper Mills, Merriton, Ont., is to become the superintendent of Fraser Company, Ltd., Edmunston, N. B.

A. G. Natwick is to be superintendent for the Lincoln Paper Mills, Merriton, Ont. He was formerly sulphite superintendent of the Howland Paper Company, Howland, Me.

L. L. Brown, of Toronto, B. C. Lumber Commissioner, left recently for Vancouver, being called there owing to the illness of Mrs. Brown, who is greatly improved.

Charles F. Mansell, of the sales staff of the Howard Smith Paper Mills, Toronto, left last week on an extended holiday trip to St. Petersburg, Fla.

O. H. Moore, managing director of the Hind & Dauch Paper Company of Canada, and Mrs. Moore, have returned to Toronto after an extended automobile trip to the sunny South.

Fred Smith, of Smith, Davison and Wright, wholesale paper dealers, Vancouver, who was a former member of the trade in Toronto, has been East on an extended buying trip. Mr. Smith reports that business in the Pacific Coast city is picking up.

"NATIONAL" NEWS

OF INTEREST TO DYERS AND THE COLOR-USING INDUSTRIES IN GENERAL

Prepared by the

NATIONAL ANILINE & CHEMICAL COMPANY, INC.

How Can the Dye Manufacturer Best Serve You?

By cooperation in solving the technical problems that confront you in the application of color

The National Aniline & Chemical Company, Inc., maintains a technical application division composed of a staff of color experts having at their disposal complete laboratory facilities for the practical solution of color problems.

This technical service, which is freely offered to the Company's customers, covers all matters pertaining to the accurate application of "National" dyes. It includes the analysis of materials prior to the application of color and the selection of dyes suitable for these materials; the best methods of obtaining, in different classes of stock, new shades that are called for by the market; and all other problems that arise in dyeing operations.

American Paper Dyes Now Standard

Wall Paper Mills now able to secure high quality line

Color is just one factor in the sale of wall paper. But it is an important one—so important, in fact, that the wall paper industry is largely dependent on the quality of the dyes it is able to obtain. The dealer must feel confident of the dyes used in the paper he sells to his customers—the manufacturer must be sure he receives dependable dyes at satisfactory prices.

The National Aniline & Chemical Company, Inc., has developed a line of "Dyes for Paper" many of which are suitable for all phases of wall paper manufacture.

For beater dyeing for instance there is available a full range of colors suitable for the production of any desired shade.

Here are some "National" Dyes possessing the necessary qualities demanded by the wall paper trade.

National Acid Dyes

National Metanil Yellow P Conc.
National Croceine Scarlet MOOP
National Fast Red SP
National Acid Orange YP
National Acid Black 10 BP
National Nigrosine 128 BP

National Direct Dyes

National Paper Yellow 4 GP
National Erie Fast Scarlet 4 BAP
National Erie Fast Orange CGP
National Erie Fast Orange AP
National Niagara Blue 2 BP
National Niagara Sky Blue 6 BP

In the use of these dyes the "National" freely offers the service of its paper laboratory and technical staff with full confidence that the needs of the wall paper maker have been met, and that there are now at his disposal dyes as fast and as dependable as any he has ever used.

ACID DYES INDISPENSABLE FOR SIZED PAPER

Light tints or heavy shades obtainable on all grades of paper

National Quinoline Yellow P
National Tartrazine P Conc.
National Metanil Yellow P Conc.
National Acid Orange YP
National Acid Orange RP
National Croceine Scarlet MOOP
National Fast Red S P
National Azo Rubine P Extra
National Azo Bordeaux P
National Resorcine Brown R N P
National Acid Violet 4 B N P
National Fast Acid Violet B P
National Acid Violet 12 B P
National Fast Tinting Blue R
National Fast Tinting Blue B
National Fast Alizarine P
National Pure Soluble Blue A
National Pure Soluble Blue B
National Acid Green L P
National Acid Green B P
National Acid Black 3 G P
National Acid Black N B R P
National Acid Black 10 B P
National Nigrosine 128 B P

The above "National" acid dyes have found favor with paper mills because of their uniformity, strength, solubility and level-dyeing qualities.

Acid dyes as a class excel basic dyes in fastness to light. This property generally compensates for the higher tinctorial value of the latter.

A full range of bright colors is obtainable with "National" acid dyes either "straight" or in combination with dyes in the basic or direct groups. On mixed stocks their use in combination is desirable because of the uniformity in the finished product.

Thorough study has been made of the particular problems of the paper trade. An especially equipped paper laboratory and technical staff are prepared to assist paper mills in the application of "National" dyes to their product.

National Aniline & Chemical Company, Inc.

MAIN OFFICE
21 Burling Slip, New York City

Boston	113 High St.
Charlotte	236 W. First St.
Chicago	111 W. Washington St.
Hartford	209 State St.
Montreal	8 Place Youville
Philadelphia	653 N. Broad St.
Providence	28 N. Main St.
San Francisco	120 Second St.
Toronto	14 Front St., East

THE FIRST AND LARGEST MAKERS OF COAL-TAR DYES IN AMERICA

NATIONAL DYES

ECONOMIZERS, FEED WATER HEATERS, SUPERHEATERS AND AIR PREHEATERS FOR PAPER MILL POWER PLANTS

WRITTEN SPECIALLY FOR THE PAPER TRADE JOURNAL BY W. F. SCHAPHORST

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The following article is the sixth in a series of articles to be printed in the PAPER TRADE JOURNAL *on the subject of Power Plant Machinery for Paper Mills. In this series of articles it will be the aim of the author to go through the entire power plant of the paper mill and give the non-technical official a pretty good idea of what he should have in his mill. As it is, owners and officials who are responsible for the buying frequently know very little about the different types of power plant machinery on the market.*

Economizers

The so-called "economizers" is an apparatus which is placed in the path of the hot flue gases leaving a boiler for the purpose of absorbing as much of the heat from the hot gases as possible. The heat absorbed is used for heating the boiler feed water before it enters the boiler.

Below is a table that gives the percentage of heat that escapes up the chimney under temperatures varying from 300 deg. F. to 800 deg. F. This table emphasizes the value of the economizer:

HEAT OF FUEL PRESENT IN CHIMNEY GASES.

Chimney Gas Temperature	A	B	C
300 deg. F	.....	.....	12.4 per cent
350 deg. F	.....	12.0 per cent	14.9 per cent
400 deg. F	.....	14.0 per cent	17.4 per cent
450 deg. F	12.2 per cent	16.1 per cent	20.0 per cent
500 deg. F	13.8 per cent	18.2 per cent	22.6 per cent
550 deg. F	15.4 per cent	20.3 per cent	25.2 per cent
600 deg. F	17.0 per cent	22.4 per cent	27.8 per cent
650 deg. F	18.5 per cent	24.4 per cent	30.4 per cent
700 deg. F	20.1 per cent	26.5 per cent	.....
750 deg. F	21.7 per cent	.....	.....
800 deg. F	23.2 per cent	.....	.....

Column A, is based on using 18 pounds of air per pound of combustible in the fuel and represents average underfeed stoker operation with forced draft. It will be observed that losses are considerably less in this column than in column B and C.

Column B, is based on using 24 pounds of air per pound of com-

(*Continued on page* 26)

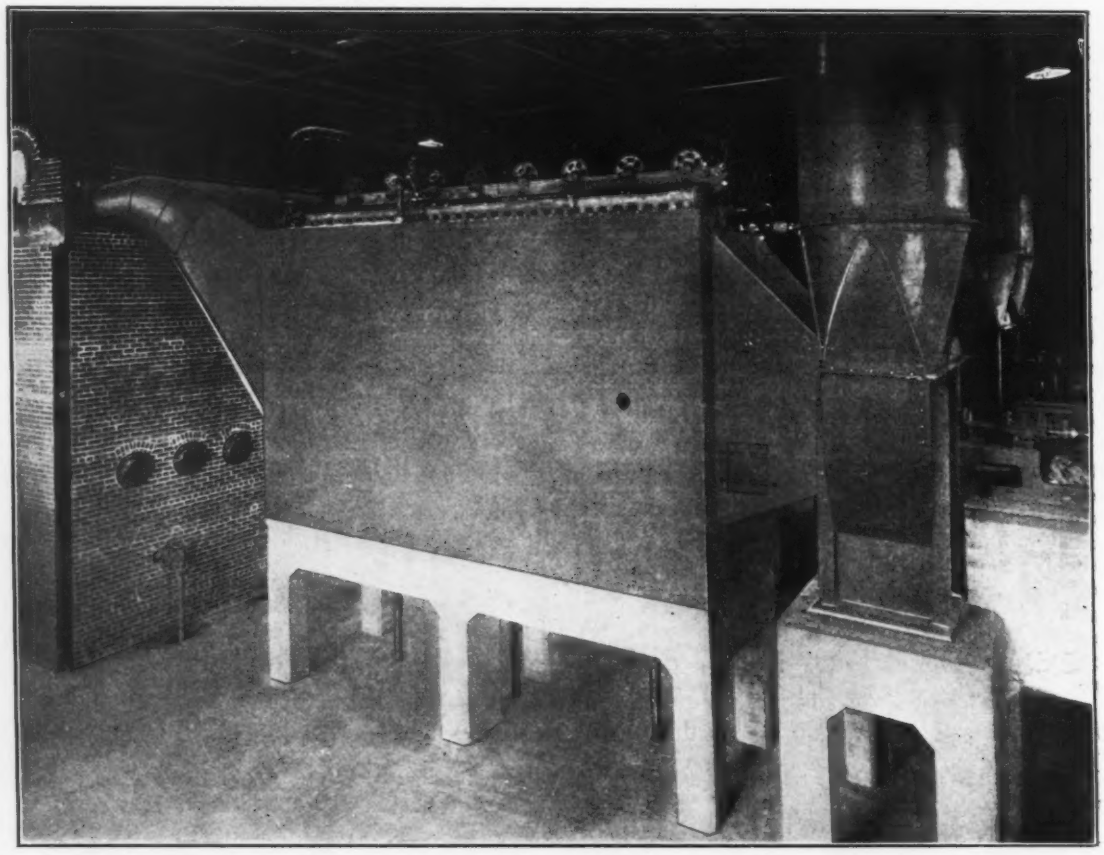
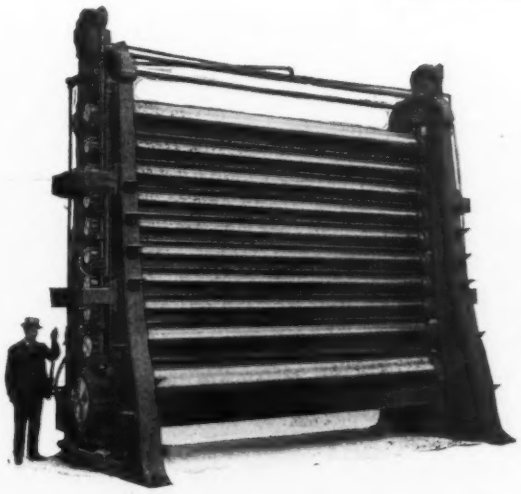


Fig. 1. An economizer installation showing a bent tube boiler at the left, the economizer in the center, and an exhaust fan at the right. Installed in the plant of the Wausau Sulphate Fibre Co., Mosinee, Wis. (Courtesy Green Fuel Economizer Co., Beacon, N. Y.)

Since 1848



You know that, however good your calender rolls are, it takes care to keep them true and fit to produce the quality you demand in your paper. The rolls become worn and perhaps scored with usage.

We are, therefore, offering Farrel roll grinders as the most economical method for you to keep your rolls in shape.

Farrel grinders are precise machines—they play their part in the quality of Farrel rolls in the manufacture, and will play the same part in regrinding your used rolls.

We had to buy our rolls in England then, because they were not made in this Country. In 1848 Franklin Farrel founded the Farrel Foundry and Machine Company. He built machinery to carry rolls and it was one of his ambitions to make his own rolls instead of buying them abroad.

About 1865, therefore, we began to make chilled rolls and Mr. Farrel lived to see the day when, instead of importing rolls for his machines, he exported Farrel chilled rolls to Europe and all over the world.

We have specialized on paper calender rolls and have made more of them than any other chilled roll manufacturer. We know the chilled roll proposition and you can benefit by our experience by specifying Farrel rolls.

FARREL

Established 1848

Foundry and Machine Company

Ansonia, Conn.

Branch Plant:

Buffalo, N. Y.

ECONOMIZERS, FEED WATER HEATERS AND SUPERHEATERS

(*Continued from page 24*)

bustible in the fuel and represents average overfeed or natural draft stoker operation.

Column C, is based on using 30 pounds of air per pound of combustible in the fuel and represents average operation with hand-firing and natural draft.

Without the use of an economizer this heat would all be wasted, but by applying the so-called "counter-current" principle and using the heat in the chimney gases after they leave the boiler to heat the feed-water before it enters the boiler a large part of this heat may be saved and utilized.

"Economizer" is not as good a name as "flue feed-heater" would be, but the term "economizer" has been used so much that it will probably always be used. Feed water heaters, superheaters, boiler feed regulators, air preheaters, and many other devices are "economizers" as much as is the economizer, consequently the name should not be applied to only one of the methods of economizing.

As pointed out in the writer's article on "Steam Boilers," it is common practice these days to overload boilers as much as 100 or 200 per cent. It is considered poor engineering to operate boilers at normal rating. Boilers in some paper mill power plants are designed to operate at 100 per cent overload continually—at normal load. At peak load the capacity may be forced up to even 300 per cent above normal.

With boilers operating above normal it is easy to understand that chimney gas temperatures will be higher than when operating at normal. There is bound to be more waste, and boiler efficiency is bound to be less unless some means is provided to absorb the waste heat that goes up the chimney. It is the function of the economizer to absorb and utilize this waste heat.

Besides, the modern tendency is to increase steam pressures. Increased steam pressure means increased steam temperature and consequently increased flue gas temperature—another reason why the economizer should be used.

The same overall efficiency can be attained, to be sure, by installing more boilers and operating them always at normal load. But the same high economy cannot be attained. If it were only a matter of "boiler" investment the problem would be simple, but in addition more stokers would be required, more stacks, larger buildings, greater operating costs, insurance and interest on investment would be higher, etc. Consequently the economizer is always an essential in most modern paper mill power stations.

In many instances the economizer has saved as much as 10 to 15 per cent in fuel. For every 11 deg. rise in feed water temperature there is a 1 per cent saving in fuel. To save 15 per cent in fuel is therefore only necessary for the economizer to raise the temperature 165 deg., or, from 47 degrees to 212 degrees F., which is possible under certain conditions. By preheating the water the economizer increases the boiler capacity 20 to 40 per cent. It furnishes a large reserve of hot feed water and leaves to the boilers only the work of bringing the hot water to the vaporizing point and generating into steam. More recent types of economizers bring the feed water temperature up to the temperature of the steam itself—effecting still greater economies.

The economizer also protects boilers against sudden expansion and contraction due to temperature change when cold water is fed. Leaks are thus minimized and the life of the boiler is prolonged. The water is also purified before entering the boiler, scale being deposited within the economizer itself in a section that is easily cleaned out. This makes the boiler more efficient, more durable and safer, the tendency to bag being reduced. Also the economizer having considerable tube surface, and being comparatively cool, catches much of the soot thus lessening the smoke from the stack. The soot is automatically cleaned from the economizer tubes either with a soot cleaner or with scrapers.

Until recently most economizers have been made of cast iron and many cast iron economizers are still being installed. Cast iron is considered best for low pressure work—for heating the water up to the lower temperatures. The Prime Movers Committee of the National Electric Light Association gives the pressure limit for cast iron economizers at 250 pounds per square inch.

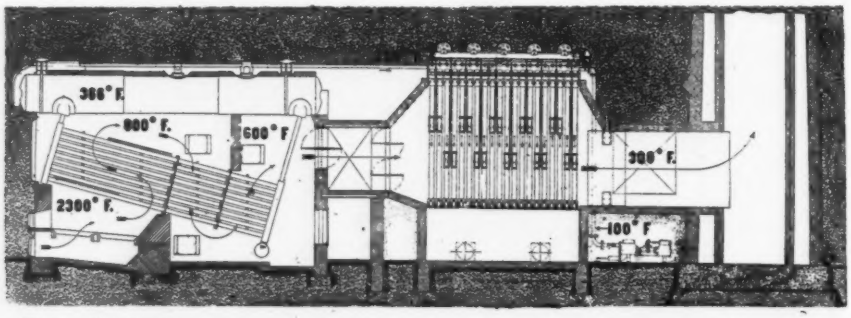


Fig. 2. Showing how the temperatures gradually reduce from the boiler furnace to the chimney with an economizer interposed.

Wrought-steel tube economizers are now gradually coming into use, being preferable for the higher pressures that are gradually being adopted. The principal objection to wrought-steel is corrosion. Cast iron resists corrosion almost perfectly. Wrought-steel economizers occupy less space than cast iron; they cost less: and they transfer heat more readily than cast iron. The steel tubes are about one-half as large as the cast iron tubes, the latter being 4 to 5 inches in diameter. While it is true that corrosion attacks steel more readily than cast iron, remedies are being found to combat corrosion such as galvanizing, painting the inside of the tubes with carbon paint, and placing steel turnings in the bottom of the heater.

Occasionally combinations of cast iron and wrought-steel economizers are installed. The cast iron portion is under low pressure. The water is then pumped to the high pressure wrought-steel section where it is heated still more. From there the water is pumped into the boiler. Although a very economical arrangement this method has the objection of being rather complicated.

Induced draft fans are generally installed in connection with economizers to make certain that draft will be ample. Since the economizer cools the chimney gases, often to 300 deg. F., there is not sufficient remaining temperature difference to enable a chimney to operate satisfactorily on natural draft. With

(*Continued on page 28*)

FITS THE HAND

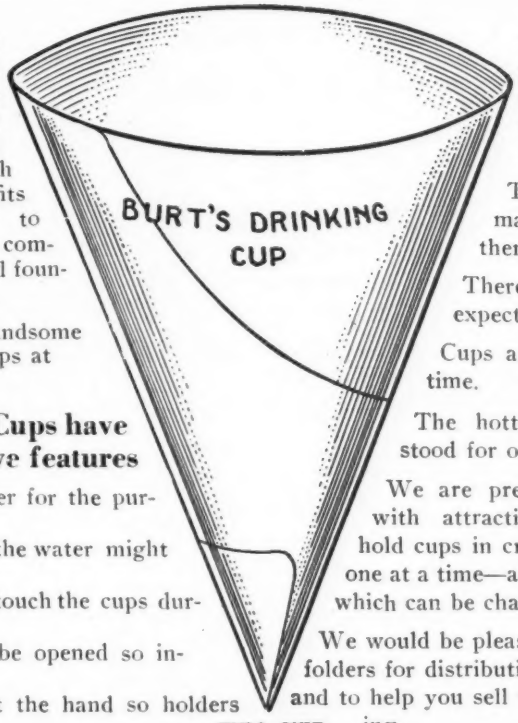
Millions Now Used In Offices,

DAINTY HOLDER—IF DESIRED

Clubs, Factories, Public Institutions,

theatres, etc., in this country and Canada show that Burt's Drinking Cups are greatly appreciated by employers who wish to prevent loss of profits from sickness—due to epidemics caused by common drinking cups and fountains.

You can make a handsome profit selling these cups at $2.50 a thousand as



FULL SIZE

Burt's Drinking Cups have a dozen distinctive features

The finest white paper for the purpose is used.

Wax is not used as the water might taste of it.

Human hands never touch the cups during manufacture.

They don't have to be opened so insides stay clean.

Cups are made to fit the hand so holders are not needed.

They are trebly reinforced so don't close up and spill. They are of ample capacity to save time.

Their conical shape makes it hard to set them aside for re-use.

There is no bottom to unexpectedly drop out.

Cups are dispensed one at a time.

The hottest drinks are withstood for one using.

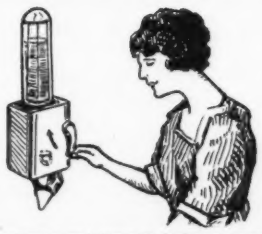
We are prepared to supply you with attractive dispensers which hold cups in crystal tube and deliver one at a time—also with dainty holders which can be chained to dispenser.

We would be pleased to supply you with folders for distribution in your community and to help you sell with national advertising.

F. N. BURT COMPANY, LTD.,

Paper Cup Division,

BUFFALO, N. Y.



TURN HANDLE FOR 1 CUP

Only $2.50 per Thousand

STOPS CROWDING

ECONOMIZERS, FEED WATER HEATERS AND SUPERHEATERS

(*Continued from page 26*)

mechanical draft the intensity of draft is entirely independent of temperature.

When selecting the economizer and fan make sure that the fan is ample in size to handle all air plus an allowance that must be made for air leakage. Although air inleakage should not be permitted and should be eliminated as much as possible, it is well to be safe and figure on at least 50 per cent air infiltration through the boiler and economizer settings.

It is not a simple matter to decide whether or not an economizer should be installed in a given paper mill power plant. One manufacturer of economizers states in a letter that I have seen "they are not suitable for boiler capacities under 5,000 h. p., because they will not yield an economical return which will warrant the investment. The same manufacturer, however, in his economizer catalog shows with "actual figures" that an economizer in a plant of less than 1,500 h. p. will produce a return of more than 50 per cent annually on the investment. However, the catalog was written several years before the war. Conditions have changed greatly. The price of fuel has advanced, but not so much as the price of economizers. It is now claimed that the price of fuel will not drop to pre-war figures, whereas the price of economizers may. These fluctuations, of course, affect the power plant size limitations. The kind of fuel makes no difference whatever with an economizer. Everything hinges upon the price of the fuel. The higher the cost of the heat units in the fuel, generally, the greater the necessity of an economizer.

If a new paper mill power plant is being built the official in charge will naturally want to know whether or not it will pay to install an economizer. The wrong way to approach the problem is to pick out a certain boiler and note its efficiency; and then add an economizer to the boiler and note the "overall" efficiency. That method is wrong. The right way is to try to select the boilers alone, without economizers, that will give as good results as the most economical combination of boilers and economizers.

Sometimes it is impossible to do better than to select a large boiler properly designed for the conditions at hand with the boilers well baffled. A large boiler will give better commercial returns very often, than will a boiler of smaller size with an economizer added. In fact, very often, the larger boiler will outpoint the smaller boiler plus an economizer in nearly every respect.

If the power plant is an old one, and the paper mill official is undecided as to whether or not an economizer will pay, the problem is really simpler than in the case of a new plant, because if the plant is old the boilers are already installed and the official is usually certain that the old boilers will not be removed, consequently it is an easy matter to determine what the efficiency of the present plant is and to determine what the efficiency of the combined old plant and new economizer will be. In almost any paper mill plant it is comparatively easy to learn what the flue gas temperatures are, how much coal is burned per year, how much air passes into the furnace, etc. It is also a comparatively simple matter to determine the probable increased cost of upkeep when the new economizer is added and to determine the cost of all new equipment such as, the economizers, the soot cleaner, the induced draft apparatus, the housing, the cost of the increased space, etc.

Sometimes it does not pay to add economizers to all boilers, but rather to only some of them. Those that are equipped with economizers are then operated most of the time when the load is steady and when continuously high efficiency is wanted. Then if the mill is subjected to peak loads at various times, as may happen, the boilers not equipped with economizers are brought into action. This, of course, reduces the first cost to the minimum. Whereas it is true that during the high or peak loads, the plant is not operating at as high an efficiency as would be the case if all boilers were equipped with economizers yet nevertheless it does not pay to install expensive equipment and have it lying idle for the mere sake of being ready when heavy loads come along. The best way to handle situations of that kind is to use low first cost peak load apparatus. This is true for stand-by service as well as for peak load service.

If mill conditions are such, on the other hand, that the load is constant nearly all the time, it usually pays to use economizers for all boilers.

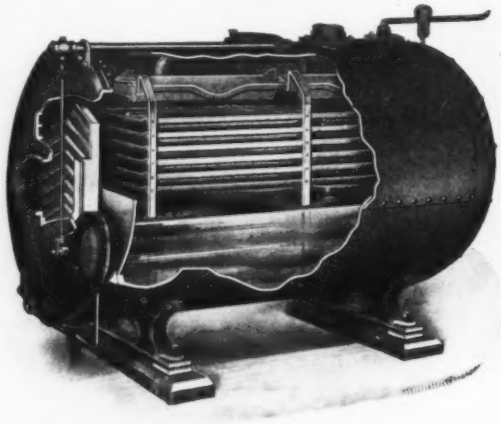


Fig. 3. Showing a live steam feed water heater. For use where it is desired to bring the temperature of the feed water up to the temperature of the steam. (Courtesy Hoppes Manufacturing Co., Springfield, Ohio.)

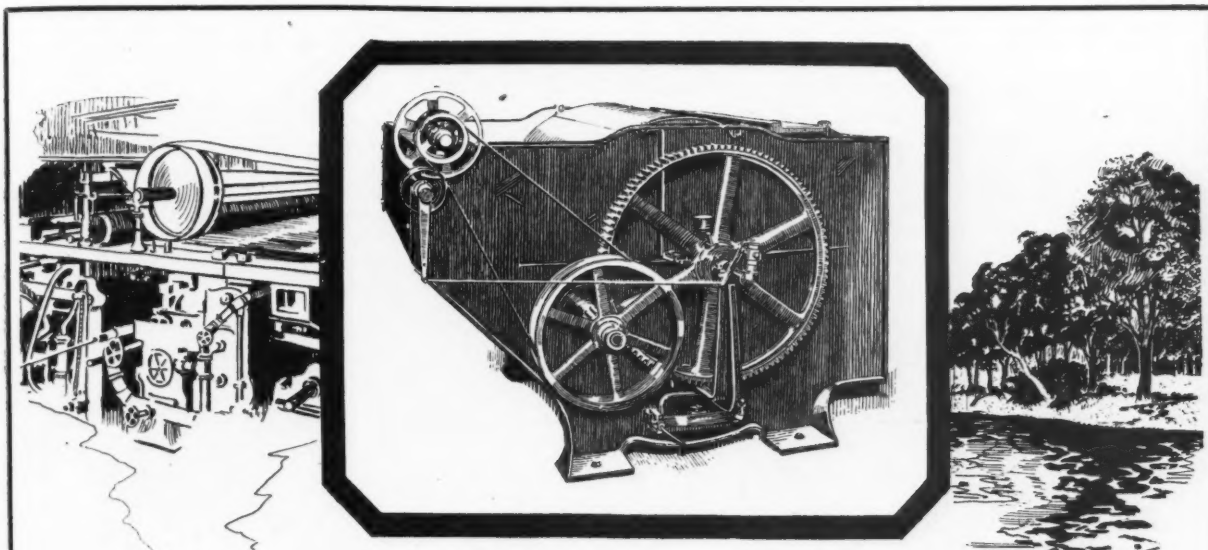
To be sure, the cost of the fuel has nearly everything to do with whether or not economizers are to be used. If the fuel is cheap economizers might be uneconomical. However, during the last few years the cost of fuel has risen and as a result economizers are being used more and more.

During recent years the practice has been to install only one economizer and by-pass all of the hot flue gases through or around that economizer. This latest practice, however, is to use a separate economizer in connection with each boiler, as it simplifies matters, reducing the hot gas leakage to the minimum.

Another good way to decide whether or not an economizer will pay is to design the entire plant both ways—with the economizer and without the economizer. Then figure how much the total power will cost with or without the economizer. The difference will decide whether or not the annual return due to the economizer will justify its installation. When making these computations the following factors must be taken into account:

(1) Cost of fuel delivered into the bunkers at the plant; (2) capacity of plant; (3) average annual load; (4) kind and number of boilers; (5) average temperature of gases leaving boilers; (6) heat value of fuel; (7) cost of fuel; (8) average temperature of feed water entering economizer; (9) amount of fuel burned annually; (10) first cost of economizer, fan, connections, etc.;

(*Continued on page 30*)



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THE BIRD SAVE-ALL

ECONOMIZERS, FEED WATER HEATERS AND SUPERHEATERS

(*Continued from page 28*)

(11) cost of building with and without economizer due to difference in space requirements; (12) cost of operating economizer; (13) depreciation; (14) cost of maintaining economizer.

Feed Water Heaters

The feed water heater is a device that is not appreciated enough. Some power plant owners seem to have the idea that such heaters are "made to sell" mostly, that they are a "theoretical" addition to the plant rather than a practical addition. The statement is often made in advertisements: "A feed water heater will save from 10 to 20 per cent of your coal," and the reader or prospective buyer immediately adds his grain of salt.

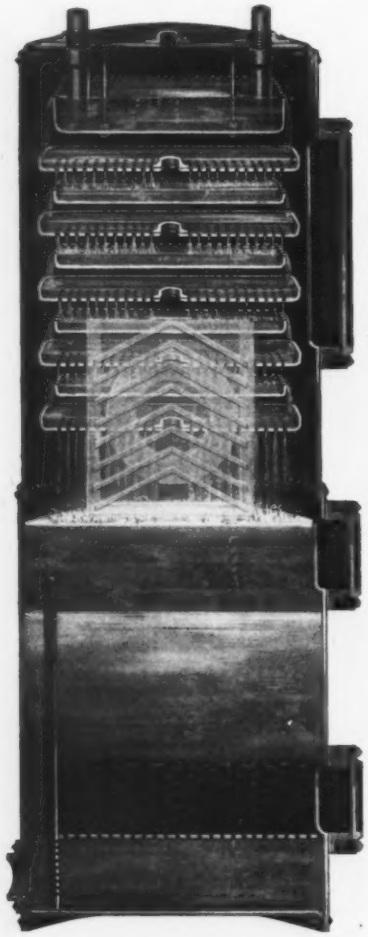

Fig. 4. Interior of open type feed water heater. Water trickles down over trays, mingles with exhaust steam, is heated, and is stored in the reservoir below. (Courtesy Bass Foundry & Machine Co., Fort Wayne, Ind.)

Like the economizer the feed water heater preheats boiler feed. Instead of utilizing waste chimney gases, however, the feed water heater utilizes the heat in exhaust steam that would otherwise be wasted.

The feed water heater, also, saves approximately one per cent of the fuel for each 11 deg. of increase of feed water temperature. Thus if the initial temperature of the boiler feed is 70 deg. F. and the feed water heater brings the temperature up to 200 deg. F. we have an increase of 130 deg. F., equivalent to a saving of about 11.8 per cent of the fuel bill.

In non-condensing plants, such as we usually have in paper mills, exhaust steam from the main engines is generally used for heating and processing purposes. In condensing plants the exhaust from auxiliaries is utilized to reheat the exhaust steam from the main engine after having been condensed. There is always a loss of water, to some extent, in condensing plants, requiring the use of a small percentage of fresh or "make up water." This make up water, also, is passed through the feed water heater with the condensate.

Fig. 5. Exterior of typical cast iron heater showing cleaning doors, pipe connections, and general simplicity of this type of open heater. (Courtesy Worthington Pump & Machinery Corp., New York City.)

Evaporators have recently come into use in some of the larger power plants for preheating and preparing the make-up water for the boilers. By means of so-called "multiple effect evaporators" it is possible for one pound of steam to evaporate as much as 8 pounds of water or even more. In the evaporation process all scale forming matter is left behind, in the evaporators, thus giving the boilers pure distilled water. This

(*Continued on page 32*)

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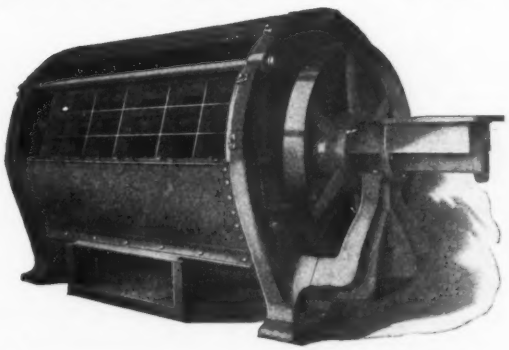

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ECONOMIZERS, FEED WATER HEATERS AND SUPERHEATERS

(*Continued from page 30*)

is an excellent apparatus. Practically no heat whatsoever is lost. The principal objection to the evaporator method is the high first cost which does not justify its use in small paper mill power plants, and often not in large ones.

There are two types of feed water heaters—the open heater and the closed heater. In the open type heater the exhaust steam or steam used for heating comes into direct contact with and intermingles with the water which it heats. If there is any oil in the exhaust steam (and there frequently is) it should be carefully removed before permitting it to enter into the heater. Most open type heaters are already provided with oil separators, oil skimmers, and filters, thus taking care of the oil problem.

The closed type of heater is much like an economizer in that it is made up of pipes or tubes. The water to be preheated passes through the tubes and the steam for heating surrounds the tubes. Thus the heat must pass through metal before it can reach the water—a less efficient method than the open type method.

One advantage of the closed type of heater is its ability to use high pressure steam where it is desired to increase the feed water temperature to more than 212 deg. F. A disadvantage is the fact that scale lodges within the tubes of the closed type heater necessitating occasional cleaning. The open type heater is more easily cleaned. The open heater, in addition, saves the heat in the condensate from the exhaust steam while the closed heater wastes it. The closed heater therefore requires more exhaust steam for heating. The open heater will heat the water to a higher temperature than can the closed heater with the same exhaust steam. With the open heater it is common practice to bring the feed temperature up to within less than 3 deg. of the exhaust steam temperature. The closed type of heater, on the other hand, will not do better than bring the feed temperature up to within 15 degrees or 25 degrees of the steam temperature, much depending upon the cleanliness of the heater and the intimacy of contact between the steam and the tubes. Sometimes closed heaters become air bound, rendering them ineffective. Open heaters maintain the same high efficiency year in year out. The open heater also makes itself useful as a catch-all for condensate from heating systems, drips, and oher returns from hot water and exhaust steam sources—an advantage not possessed by the closed heater. For these reasons therefore, the open type is usually preferable in the modern power plant and is used much more commonly.

As for the available steam for heating the feed water heater, this often is a problem in itself, especially in condensing plants. Sometimes, during the light loads, more auxiliary exhaust is to be had than is required. On the other hand, during the heavier loads, the amount of exhaust from the auxiliaries is insufficient. In the latter instance it is usually good practice to "bleed" steam from the intermediate stages of the main units to make up the deficient supply. And when there is too much exhaust from the auxiliaries the surplus can be used by piping it into the proper intermediate stage of the main units. The writer will not attempt to go into this subject thoroughly here as it would consume much space. The object in touching on the matter is only to show that the problem of feed water heating has been exhaustively studied and can invariably be satisfactorily handled in any paper mill plant.

There is another type of so-called feed water heater on the market which is in a class by itself because it does not use exhaust steam at all. It uses live steam and preheats the water up to the temperature of the steam itself. In this way all scale is deposited within the heater—in easily removed and cleaned trays. It is almost impossible for scale to get into the boiler. This type of heater does not save fuel because of its preheating feature due to the fact that live steam is used. If any fuel is saved at all it is due to the maintenance of continually high boiler efficiency, which is of course a great advantage in localities where feed water is badly contaminated with scale forming impurities. Another advantage is the protection of the boiler against expansion and contraction troubles caused by boiler feed that would otherwise be cold. This heater operates along the principles of the open feed heater. That is, the live steam is permitted to make actual contact with the water which it heats. As a heater it is efficient but it is not so profitable an investment as is the regular open type heater because the latter type utilizes exhaust instead of live steam.

Every paper mill steam power plant, of any size whatever, can advantageously use a feed water heater. The only exception would be the power plant that obtains its fuel for nothing or almost nothing, but the writer doubts very much if any such condition exists anywhere today. The feed water heater is almost invariably an excellent investment, the first cost being comparatively low.

In writing to manufacturers for prices or other information on feed water heaters it is well to give them all of the principal data as follows so that they can reply intelligently: (1) Number, kind, and size of boilers. (2) Weight of exhaust steam available in pounds per hour. (3) How many pounds of exhaust steam are used per hour in heating or drying systems? (4) What back pressure, if any, in pounds per square inch, is carried in the exhaust? (5) What is the source of water supply—lake? well? river? etc. (6) What is the pressure of water supply in pounds per square inch? (7) What is the average initial temperature of water supply? (8) Are you troubled with scale in your boilers? If so, is it hard or soft? (9) Send an analysis of the water used for feed if you have an analysis. (10) Send a sketch showing layout of engines and boiler plant, principal pipe connections, etc.

Superheaters

The natural temperature of steam at atmospheric pressure is 212 deg. F. Pass this steam through a superheater and increase its temperature to 312 deg. F., without increasing its pressure, and you have steam of 100 degrees superheat. Similarly the natural temperature of steam at 200 lb. absolute pressure is 381.9 deg. F. Pass this steam through a superheater and increase its temperature to 481.9 deg. F. without increasing its pressure, and you have steam of 100 degrees superheat. The function of the superheater, therefore, is simply to increase steam temperature—not to increase pressure.

Reference has been made in previous articles of this series to the advantages of superheated steam. In all large modern steam power plants superheated steam is invariably specified. With superheated steam higher efficiencies and economies are obtainable because efficiency is dependent upon "temperature difference" in the same way that the efficiency and power of a hydraulic turbine are dependent upon the difference in water level. Superheated steam has doubtless come with us to stay.

Not only does superheated steam increase the efficiency of engines and turbines, but the efficiency of boilers equipped with superheaters is slightly increased. In European countries it is common practice to guarantee an increase in boiler efficiency

(*Continued on page 34*)

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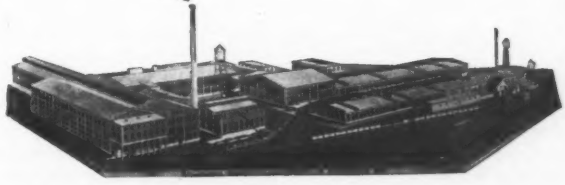

ECONOMIZERS, FEED WATER HEATERS AND SUPERHEATERS

(*Continued from page 32*)

of from 1 to 1½ per cent although such a slight increase would be difficult to prove.

Superheaters are usually placed somewhere within the boiler setting, integral with the boiler, in order that the hot flue gases will do the superheating. The superheater is never placed directly in the furnace of the boiler itself because in that location it could not withstand the heat. In all probability it would melt. Nor is the superheater placed at the "exit" of the gases because at that point the gases are comparatively cool—so cool that they would not superheat the steam to a sufficiently high temperature. Consequently it is common practice today to divide the boiler into "decks," placing the superheater between the decks at a point where the temperature of the gases for heating the superheater will be "just right."

The selection of the right kind of superheater depends largely upon the load conditions in your plant. If the load is comparatively steady a superheater of the above type would do very well, but if the load fluctuates violently, being below normal at one time and 100 to 200 per cent above normal at another time, it is evident that the superheat would also fluctuate considerably and a different type of superheater should be selected. Superheated steam of a constant temperature is always most desirable.

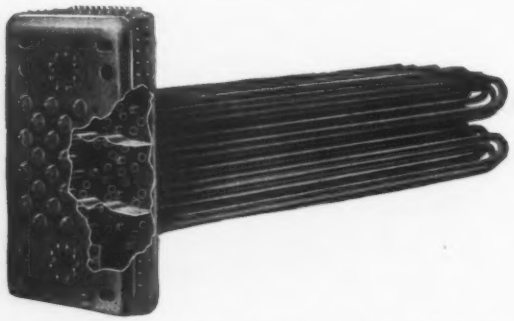

Fig. 6. A superheater of the "constant temperature type" that is often used in connection with the Heine design of water tube boiler. (Courtesy Heine Safety Boiler Co., St. Louis, Mo.)

There is on the market a type of superheater equipped with an automatic temperature control that by-passes the hot flue gases in such a way that fairly constant superheat is maintained. At the same time, if the boiler is equipped with an economizer, the heat in the hot gases is not wasted. And even if the boiler is not equipped with an economizer it is better to waste the flue gases than to melt or burn the superheater with the excessively high temperature gases.

The above types of superheaters are made integral with the boiler. Where load conditions vary suddenly, or widely, or where the prime movers are located at a considerable distance from the boilers a "separately fired superheater" located on the main steam line may be the correct solution. To be sure, separately fired superheaters are less efficient than the integral type and are not so much used. The integral type is always preferable wherever it can be installed. Superheaters that are separately fired should be automatically regulated or carefully watched so that in case of a sudden drop in steam consumption the superheat will not run too high and the superheater will not be ruined.

It must be remembered that although beneficial as regards steam consumption, superheated steam also has its upper limitations. If allowed to get too hot superheated steam will ruin brass and other alloy fittings and may have a retarding effect upon the lubrication of steam engines. Turbines, engines and pipe fittings are usually made of different kinds of metals, joined together. Each metal usually has a coefficient of expansion of its own, different from the other metals, and therein, also, hinges another trouble. The highest steam temperature which the writer has ever seen recommended by a superheater manufacturer is—800 degrees F., which is "pretty high."

In selecting a superheater bear in mind the fact that when placing same within the boiler setting it is liable to increase the frictional resistance of the gases through the boiler. Be sure this resistance will not be increased too much. The superheater should be so placed that it will have ample space in which to expand and contract, independently from the boiler, boiler parts and setting. See that the superheater is equipped with an independent safety valve of the outside spring type. This safety valve should be set slightly lower than the safety valve on the boiler so that in case of too high pressure the superheater valve will let go first and there will always be a flow of steam through the superheater. Otherwise, if the boiler safety valve lifted first the flow of steam through the superheater might cease and the superheater might be ruined by burning. Also be sure that the superheater is equipped with drains for removing water before starting up.

Users of superheaters should be careful about permitting saturated steam connections to the boiler in addition to the superheater connection, especially to the prime movers. This is bad practice because the use of saturated steam reduces the amount of superheated steam, the velocity of superheated steam is reduced correspondingly, and as a result there might not be sufficient flow through the superheater for its own protection against distortion or burning. Saturated steam connections should never be permitted to carry more than 10 to 15 per cent of the entire amount of steam generated by the boiler.

Despite the great amount of study that has been given superheaters and despite the broad experience that has been had with them, it is practically impossible to predict with accuracy the performance of a superheater under varying conditions. With a given coal a stoker may give a lower degree of superheat than would hand-firing with the same coal. It is reported that in one plant, which was converted to burning oil from previous mechanical stoking the superheat was reduced 36 per cent at normal load; reduced 40 per cent at 50 per cent overload; and reduced 42 per cent at 100 and 150 per cent overloads respectively. It is evident, therefore, that the fuel and method of firing have much to do with the degree of superheat obtainable. Other factors that affect the degree of superheat are: amount of excess air used in combustion; heating value of coal burned as well as kind of coal; type of stoker used; and quality of manual attendance. In view of these facts, therefore, the paper mill power plant official must not be surprised if, after purchasing and installing a superheater, it fails to give the exact degree of superheat desired—unless it is of the type equipped with by-passes and automatic temperature control. The writer knows that the largest manufacturers of superheaters are still having their troubles. Still, in spite of these troubles, superheaters are to be recommended as important economy factors in all modern paper mill steam power plants.

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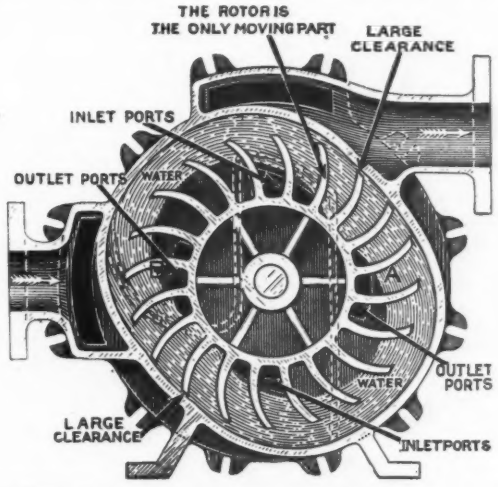

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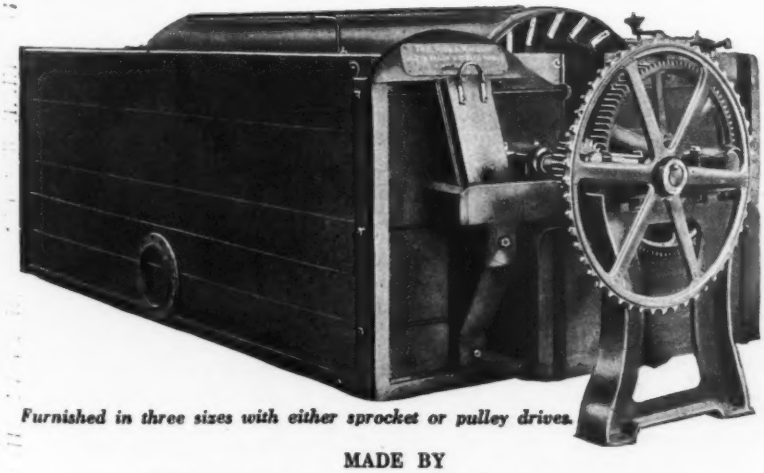

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ECONOMIZERS, FEED WATER HEATERS AND SUPERHEATERS

(*Continued from page* 34)

Pre-heating Air

It is becoming more and more the practice to burn as little coal and other fuel as possible, not only in paper mill power plants, but in ALL plants—to save fuel even though apparatus of rather high cost must first be installed.

There are various ways of doing this. Some plants use feed water heaters, some install more efficient engines, turbines, or transmission systems, some install economizers, and so on. Some of the largest and most up-to-date plants install EVERYTHING that can be proved to be a wise investment. The latest economy kink to be utilized is "warm air" for feeding to the furnace.

For example, electric generators "heat up" when they generate current and in many installations now a days they are cooled by means of fans to keep the temperature from going too high. The air itself used for cooling the generators is, of course, slightly heated and in most installations of today

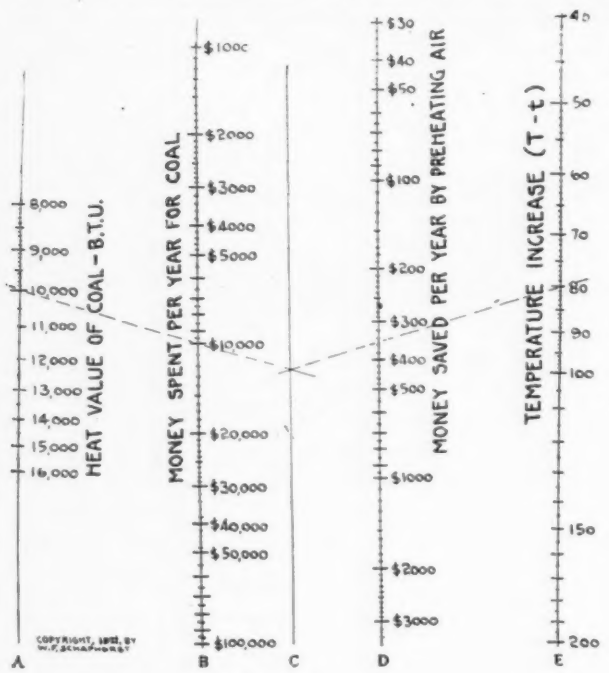

Fig. 7. A convenient chart for use in computing the saving made possible by installing an air pre-heater of either the generator or chimney type.

this heated air is permitted to co-mingle with the cooler atmosphere again, which is a dead loss. Heat should be conserved wherever it can be done profitably.

Up-to-date engineers, therefore, are utilizing this "waste heat" to advantage in many instances. The warmed air from the generators is carried in ducts to the furnaces, thus lessening the labor of the fuel and saving heat.

On the average, allowing extra air to permit complete combustion, each pound of coal requires 18 pounds of air.

Inasmuch as 0.24 of one British thermal unit is required to raise the temperature of one pound of air one degree Fahrenheit it is evident that much of the heat value of the pound of coal is lost in simply bringing the temperature of the cold air up to the temperature of combustion. For each degree (0.24 x 18) 4.32 B. t. u's. are lost. If the heat value of the coal is 10,000 B. t. u's. this preheating therefore represents a loss of (432 ÷ 10,000) 4.32 per cent.

It is now evident that this preheating proposition is nothing to be shoved away lightly. In these days of high coal prices and coal scarcity it should be taken seriously.

To aid the reader in figuring his own conditions the writer has constructed a chart. Lay a straightedge across the chart twice as indicated by the dotted lines and Column D will immediately give the approximate saving that can be effected by preheating the air.

For example, if the heat value of the coal is 10,000 B. t. u.; if the mill is spending $10,000 per year for coal, and if the mill could preheat the furnace air at least 80 deg. F. the year around, how much money would be saved per year?

Run a line through the 10,000 (column A) and the $10,000 (column B) and locate its intersection with column C. Then from that point of intersection run over to the 80 (column E) and where the line cuts column D, the answer is found to be very close to $350.

In other words, if it would cost $7,000 to install the ducts, fans, etc. The saving would amount to only 5 per cent of the investment. That would hardly be enough to cover interest, upkeep, power, depreciation, etc. If the first cost would be $3,500 the saving would amount to 10 per cent, which is better. Perhaps the first cost would be only $350. If, on the other hand, the generator cooling apparatus must be installed ANYWAY, why not simply add enough piping to carry the pre-warmed gases to the boiler furnace?

However, in the average paper mill there is a more serious loss than that from heated generators and that is, as expounded above in connection with economizers—the loss from the chimney. As stated several times in this series of articles, the wastebasket of the paper mill power plant is the chimney. Much money, in the form of good heat, goes up the chimney from nearly every paper mill.

Of late years there has been talk and some action with regard to utilizing some of that heat to pre-heat the air supply used for cleaning the furnace.

The problem of pre-heating air looks simple and it looks as though it should be economical, but the great obstacle is —as pointed out above—the first cost. It takes time to preheat air or anything else. That is, air cannot be heated instantly, consequently more or less surface is needed over which to pass the air during the pre-heating process, metallic ducts must be built, and altogether we are liable to run into the stumbling block of high first cost.

The first thing to do, therefore, is to find out how much a pre-heater will cost, then find out how much money it will save annually, and then on the basis of the life of the apparatus, interest on the investment, etc., to determine whether or not it will be good economy to install such a pre-heater.

It may be thought by some that there is a confliction between an economizer and a pre-heater, but this is not the case. It is possible to use them both in a paper mill plant, because after the flue gases have left that economizer they still have a temperature considerably higher than the temperature of the atmosphere. The temperature may be as high as 300 or 400 deg. We thus have 200 or 300 deg. with which to work in heating up the temperature of the air during hot midsummer weather when the weather thermometer may go as high as 100 deg. F.

(*Continued on page* 38)

GROUND WOOD
CHEMICAL PULPS

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NEW YORK

PAPER

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Connections Also in

BARCELONA **PARIS** **MEXICO CITY**

New York Trade Jottings

George M. Rogers is now associated with R. F. Hammord in the pulp business at 342 Madison avenue.

* * *

The Hudson Bag Company, Inc., has opened a suite of offices at 516 Fifth avenue at the corner of 43d street to better accommodate the trade. Telephone: Vanderbilt 4384.

* * *

The George W. Wheelwright Paper Company with New York offices at 200 Fifth avenue has issued and distributed to its clientele a new set of samples of Dove Mill Bristols.

* * *

It is estimated that the annual report of the American Writing Paper Company which should be out soon will show a loss of something over $1,500,000. This will include a charge off of almost $1,000,000 for inventory depreciation which was written down to market.

* * *

Fred Lochman, representing the California Card Manufacturing Company, returned to New York Friday, March 3, from a month's business trip through the Middle Atlantic States. He attended the seventh Annual Convention of the Photographers' Association of the Middle Atlantic States held February 27-28 and March 1 and 2 at the Hotel Schenley at Pittsburgh, Pa.

* * *

In its issue of Tuesday morning the *Wall Street Journal* said: "International Paper shares were weak. The six per cent stamped preferred stock sold down to 63. This was followed by unconfirmed rumors that the dividend might be reduced or passed. The annual meeting of International Paper will be held within the next few weeks and Wall Street will be interested to learn whether or not Boston interests still control a majority of the common stock."

* * *

International Paper is now producing approximately 1,100 tons of paper daily, all grades. When the new Three Rivers Mill at Quebec goes into operation next month output should be increased slightly. In its forthcoming annual report International Paper will show its wood written down close to $20 a cord with a deduction in inventory write-off on this account of more than $6,000,000. Including the inventory charge-off a deficit of close to $8,000,000 was piled up in 1921.

* * *

Room 104 has been announced by the American Paper and Pulp Association as the office in the Waldorf-Astoria where reduced rate railroad certificates will be countersigned by Dr. Baker, secretary, in order to secure for those attending the convention the reduced rate of one and a half fares for the round trip. The same privilege has been granted the National Paper Trade Association, and Dr. Baker will sign the certificates of this associations' members, as well as those of the manufacturers.

* * *

The Weiss Fibre Container Corporation has recently opened a suite of offices in room 724 of the Woolworth building in charge of H. Serkowich, Eastern representative. The main factory and office of the corporation, located in Munroe, Mich., has been in operation for nine or ten years and the mill at Mellonville, N. Y., for nearly an equal length of time. The mill, in charge of C. L. Serex, manufactures board consumed by the Michigan factory in the manufacture of a line of round fibre cans, cartons and paper specialties.

* * *

The annual meeting of the Paper Association of New York City was held today at the Hotel McAlpin. Officers and a board of directors were elected for the fiscal year and reports of committees were received. Members responded very well to the urgent request that all possible attend and a large representive group was present. Discussion centered upon the present state of the industry and the methods to be employed in improving the situation. Members felt well repaid in terms of added encouragement and renewed optimism for their attendance.

ECONOMIZERS, FEED WATER HEATERS

(*Continued from page 36*)

For example, let us take a case in a paper mill where 10 tons of coal are burned per day, the coal costing $9 per ton. For 10 hours operation per day the cost of coal is $90 per day, and for 300 working days per year $27,000 per year. In the average plant at least 16 per cent of the total heat in the coal is used to heat flue gas above 70 degrees. At least one-half of this 16 per cent, or 8 per cent can be saved by means of a pre-heater, hence the saving would be 8 per cent of $27,000 or $2,160 per year. However, from this must be deducted such costs as interest and depreciation, cost of additional space if any, cost of blower equipment if such will be needed, etc. If after making these deductions it is found that a total net return of 25 per cent will be made on the investment, such a profit might be sufficient.

I am informed of a steam plant, for example, described in *Power*, containing two 18 ft. x 66 inch horizontal return-tubular boilers which were hand-fired with nut and slack coal of fairly good quality. The engineer figured that he could improve combustion by heating the air before admitting it to the ash pit. Two ducts, made by joining together sections of circular tiling, were constructed longitudinally through the combustion chamber of one of the settings. These ducts led from circular openings in the rear wall to similar openings in the bridge wall.

It is not on record that the use of this device improved the fuel economy of the plant. It did, however, seem to aid materially in eliminating smoke. This was probably due to the fact that the air currents being admitted through the bridge wall, curled up immediately upon entering the ash pit and delivered an ample supply of oxygen to the fuel at the back end of the furnace.

This matter of pre-heaters is still in its infancy, but the writer feels that it has a future, because of the fact that the cost of coal is not liable to reduce much. In fact, as coal becomes more and more scarce, its cost will climb and with that climbing will come the need of economizers, boiler feed water heaters, pre-heaters for furnace gas, superheated steam, higher steam pressures, high vacuum condensers, and in general the most efficient equipment that can be purchased. In addition, it might be pointed out that during the winter months when buildings must be heated, it is not beyond the realm of probability that buildings will be heated by air which first has been given its heat by the warm or hot chimney gas. In that way there will be no loss whatever up the chimney because the temperature of the chimney gas will be reduced practically to atmospheric temperature and as soon as that happens we can consider the overall efficiency of the paper mill boiler plant to be very close to 100 per cent.

To Build Toilet Paper Factory in Utica

A press dispatch from Utica, N. Y., says: "A toilet paper factory will be built in this city in the near future. James E. Mitchell, manager of the Utica Paper Company, has purchased a large lot in Lincoln avenue, adjoining the Sherman Sales Company's new station and intends to erect a manufacturing building and to locate the new paper business in it.

"Construction is contemplated in the spring."

For your liquid pulp

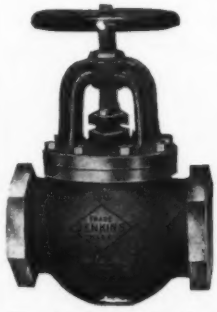

Fig 141, Jenkins Standard Iron Body Globe Valve, screwed.

Fig. 143, Angle, Screwed

HEAVIER and stronger than most standard iron body valves, built throughout to stand "wear and tear" of service, Jenkins Standard Iron Body Globe and Angle Valves are widely used on beaters for handling liquid pulp—4% solution.

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James Lawrence, President

The Lawrence Bag Company

Miamisburg, O.

Editorial

Vol. LXXIV New York, March 9, 1922 No. 10

FIFTIETH YEAR

Perpetual Inventory

Judging from the advantages of perpetual inventory or stores control as pointed out in a bulletin just issued by the Fabricated Productions Department of the Chamber of Commerce of the United States, more attention should be paid to this matter by most paper and pulp manufacturers than they give it at present.

"When capital," says the bulletin, "is in the form of cash, it is carefully protected, its receipt and disbursement safeguarded, its custodians held to a strict accounting, but once this capital is converted into materials there is a tendency to become lax, to lose sight of the value of the investment, to husband the capital less diligently, to tolerate practices that are wasteful, inefficient and needlessly expensive.

"There is something at fault with business methods when material is purchased far in excess of production requirements, when material becomes obsolete before it is even processed, when production lags for the lack of material or is throttled by the uneven flow of material through the departments, when a careful check of material receipts is not provided, when material is not protected or kept accessible for use, when foreman and workmen help themselves without authorized requisitions and material is consumed without any record for cost purposes.

"To those firms and organizations who are not satisfied that their material investment is at an efficient minimum, who suffer periodically from shortages of material, who are unable to make monthly profit and loss statements, who fret at the prospect of the annual physical inventory, who are not adequately conserving their material investment by giving it the best of physical care, to such the perpetual inventory is recommended.

"The perpetual inventory will show the past and present consumption of material, and will allow for a revision of the quantities of material carried to comply with present market and production conditions, will indicate the items that are slow moving, overstocked and non-standard. The perpetual inventory ties up here with the problem of standardization. In fact, the standardization policy cannot proceed far without the information and data supplied by the perpetual inventory system.

"An efficient stores or perpetual inventory system, and that alone, will provide for:

1. Sufficient material to meet production requirements so that production shall at least not be checked by a lack of necessary material.

2. A minimum investment in inventories which is of supreme importance at the present time.

3. An orderly and accessible arrangement of material and the physical safeguarding of material from the elements and theft.

4. The elimination of the burdensome and inaccurate annual physical inventory.

5. A monthly closing by giving the amount and value of material on hand at any time.

6. Is an invaluable record in case of fire loss.

7. A safeguard against the accumulation of obsolescent material.

"A material control system takes on an increased importance where there are numerous parts entering into production, the lack of any one of which is sufficient to check operations and throw the production program out of balance. Parts must not only be physically available in the store-room, but must converge to the point and at the time desired in production. An undue accumulation of material in the course of production will serve to interrupt the flow of production. The costliness of the sluggish movement of materials is not generally recognized, but an enterprise is impoverished by it as an individual suffering from a weakened circulation.

"Economy of material investment, particularly of parts, cannot be determined on a strictly interest charge basis. There is something bigger at stake—the most economical use of production facilities. A three months' supply of a specific part may be a high enough level to meet the usual demand, but a six months' or a year's supply may be fabricated far more cheaply and permit of greater plant output. Economy demands that work be put through in adequate lots.

"The control of material does not end with the storeroom or its record; it is genuinely a factory problem. To a large degree the success of a store's control system will depend on the cooperation of foremen and workmen. In particular the foreman can directly help the control of materials by avoiding congestion in the departments, by protecting material in the departments against breakages and theft, by assisting in the proper distribution of material to their men, by seeing that the men get the quantity of material ordered, by ascertaining that the correct number of finished pieces are produced from the quantity of material drawn or the equivalent in scrap presented, that material is skilfully handled in the departments and when processed that it is promptly and properly transferred.

"The foreman can prevent the irregular accumulation of material in this department. Who does not know the factory with its miscellaneous material smuggled away in assembly rooms or containers, or strewn under work benches and around machines, and even thrown into waste cans, all of which unnecessarily increases the investment in inventories.

"The little waste, a nut here, a bolt there, inconsequential in themselves but serious in the aggregate, test the fibre of a plant. The foreman can effectively cooperate by husbandling the consumption of such material, the requirement for which can only be estimated and not always expressed with exactitude. We have in mind factory supplies such as oil, waste, paint, greases and solder, and fittings and fastenings such as bolts, nuts, screws and rivets."

Falling Prices in Canada

The continued fall in prices is reflected in the Canadian export trade for January during which month the exports of pulp and paper were valued at $8,831,480 compared with $9,663,054 in January, 1920, and with $10,325,533 in the preceding month of December, a decline of $831,574 from last year and of $1,494,053 from the preceding month. News print gained 207,193 cwts. in volume but

lost $1,565,682 in value this year compared with last, while pulp exports gained 805,025 cwts. in volume and $1,280,119 in value.

The exports of news print for January were valued at $4,966,352 compared with $6,532,034 for January of last year. The exports of book paper were valued at $784 compared with $109,205 for January of last year. The exports of all other varieties of paper were valued at $410,329 compared with $847,919 for January of last year. The total exports of paper were valued at $5,377,465 compared with $7,489,158 for January of last year.

The exports of sulphate pulp for January were valued at $609,943 compared with $426,827 for January of last year. The exports of bleached surphite were valued at $1,072,091 compared with $526,839 for January of last year. The exports of unbleached sulphite were valued at $631,910 compared with $824,095 for January of last year. The exports of ground wood for January, 1922, were valued at $1,140,071 compared with $396,136 for January of last year. The total exports of pulp were valued at $3,454,015 compared with $2,173,986 for January of last year.

For the first ten months of the current fiscal year paper was exported to the value of $56,473,800 compared with $75,177,855 for 1921 and $49,717,824 for 1920. For the first ten months of the fiscal year pulp was exported to the value of $30,262,955 compared with $67,401,198 for 1921 and $33,858,354 for 1920. For the first ten months of the fiscal year pulp and paper were exported to the value of $86,736,755 compared with $142,578,053 for the same period in 1921 and $83,576,178 in 1920.

Exports of pulpwood for January amounted to 66,094 cords, valued at $698,943, compared with 155,752 cords, valued at $2,271,363, last year. The exports of pulpwood to the United States for the ten months' period were 630,540 cords, valued at $7,926,536, compared with 1,243,112 cords, valued at $16,396,940 for the same period in 1921 and 738,477 cords, valued at $7,417,390 in 1920.

Watertown May Have New Industry

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., March 6, 1922.—A substantial new industry for Watertown may be established in the near future if investigation and negotiations now under way are successful. Two men came to the city a few days ago for the purpose of ascertaining existing opportunities for the establishing of a plant here and since their arrival they have inspected several factories and familiarized themselves with conditions important to their interests in coming here.

While it is desired that the names of the two men and their residence should be withheld until final decision is reached, their business is no secret. They desire to establish a plant here in the midst of one of the largest paper manufacturing centers in the country so that the paper which will be treated under a special coating process will be manufactured near at hand. It is recognized as a very important branch of the paper business, and that the plant they desire to locate here would employ a large number of men.

Their desires have been taken up with the Chamber of Commerce and Secretary Ralph S. Baker has devoted his attention to assisting the men in obtaining their desires. He has taken them to several plants available. The J. B. Wise plant in Water street has been inspected. The munition buildings at the Pearl street plant of the New York Air Brake Company, the West Main street plant of the Air Brake and the International Paper Company plant at Glenn Park. While it is admitted that some of these are not suitable, it is also admitted that some of them could be used nicely.

The concern desires a factory 50 x 200 feet with two stories and a basement. This would be the sort of plant erected if it were decided to build—and there is that possibility later. The Wise plant is considered desirable, but the uncertainty of the date on which Kops Brothers can enter the new factory in the Buck Terminal building is an objection, for the two visitors want to locate early this spring. The 800 feet of continuous floor in one of the munition buildings at the Air Brake could be utilized, but it is said that the Portable plant comes nearest meeting the requirements. It is insinuated that the Glenn Park paper mill might be considered as a factory in which to manufacture the paper later. At present several local mills manufacture the paper desired for the new process.

Thursday noon the visitors took dinner at the Black River Valley Club with several local financiers and manufacturers and further details of possibilities were discussed. Frank L. Moore, formerly president of the Newton Falls Paper Company, was a member of the party.

Just what degree of satisfaction has been reached is not announced, but it is said that there are some very favorable features locally and that a decision to come here is not unexpected.

Plans for Salesmen's Luncheons

New York and Chicago members of the Salesmen's Association of the Paper Industry have fixed regular dates for monthly luncheons of their respective groups, and have so arranged their meeting dates that there will be no conflict between the meetings. In Chicago the meetings are so successful that there is a daily table set for paper salesmen at one of the Loop hotels, though the official monthly luncheon is held the second Monday of the month. The New York luncheon program was initiated last week when on the spur of the moment, with President H. H. Reynolds of the National Salesmen's Association in the city, it was decided to round up some of the members who were in the city. The result was a decision to hold the luncheons the fourth Wednesday of each month, the regular meeting place to be selected later. The March meeting will be a little off schedule, being fixed for March 29, in order that plans for the annual meeting April 11 may be decided upon.

The luncheon was attended by nearly twenty men, many of them from out of the city, and plans were initiated to make the 1922 annual meeting a notable affair. Not the least important decision was that of making the banquet Tuesday evening of convention week a ladies night, with dancing between courses and after the speaking. A speaker of national reputation will be selected.

Four committees were named, each with a chairman to select his aides, the chairmen being:

Reception Committee—George K. Gibson, Chicago.
Hospitality Committee—L. B. Steward, New York.
Banquet Committee—L. B. Steward, New York.
Membership Committee—Walter E. Perry, Holyoke, Mass.

The forenoon of convention day will be devoted to business, and after a noon luncheon the afternoon will be devoted to addresses by speakers on salesmanship, discussions of the state of the industry, and other such problems of the salesman. The evening function will be the dinner-dance to which all the salesmen will be entitled to bring their ladies.

Tomahawk Paper Co. Running Full Time

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., March 6, 1922—The Tomahawk Pulp and Paper Company plant now is operating at capacity. The entire plant has been reconstructed and its capacity materially increased. Announcement was made recently of a new securities issue to finance the construction and other new work that is in progress or is being contemplated.

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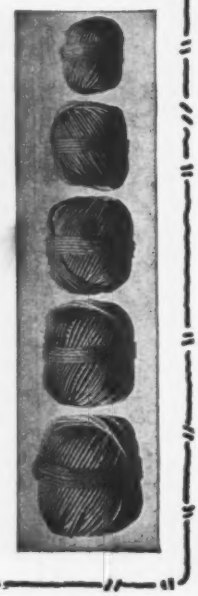

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AN ORGANIZATION FOR THE ENCOURAGEMENT OF ORIGINAL INVESTIGATION AND RESEARCH WORK IN MILL ENGINEERING AND THE CHEMISTRY OF PAPER, CELLULOSE AND PAPER-MAKING FIBERS GENERALLY; IT AIMS TO PROVIDE MEANS FOR THE INTERCHANGE OF IDEAS AMONG ITS MEMBERS IN ORDER THAT PROCESSES OF MANUFACTURE MAY BE MADE MORE EFFICIENT AND IMPROVED ALONG TECHNICAL LINES.

Conducted by W.G. MacNAUGHTON, Secretary

A SUPPLEMENTARY STUDY OF COMMERCIAL INSTRUMENTS FOR DETERMINING THE TEARING STRENGTH OF PAPER

By Paul L. Houston of the Bureau of Standards

In the past a large amount of laboratory work has been done on the tearing resistance of paper, since tearing resistance has seemed to be the best criterion of the suitability of paper for the majority of purposes for which it is used.

Statement of Problem

Up to the present time a number of instruments have been invented for determining the tearing resistance of paper. Two of these, a recording and a non-recording instrument, described as Type I and Type II instruments, have been studied thoroughly and the results published in Technologic Paper of the Bureau of Standards No. 194, and as pointed out in that paper these instruments do not give complete satisfaction.

A third instrument, which shall be called Type III in this study for the purpose of identification, was developed to give better satisfaction and to overcome if possible the difficulties that were encountered in the development and operation of the first two. Consequently, the following work on Type III instrument is supplemental to previous work.

Discussion of Type III Instrument

The principle upon which this instrument is based is the fact that the tearing force is determined indirectly by means of the work required to tear a sheet of paper. The moving segment of the instrument may be considered to be a pendulum, whose swing is retarded by the tearing of the paper. The tearing force is determined from the relation existing between work, length of tear, and force. Two well known principles of mechanics are utilized in this instrument, namely, first, that work is equal to the product of force times distance, or force is equal to work divided by distance, and second, that energy may be converted into work.

I. Description of Instrument

A brass plate, about 5 mm thick (note photograph, Fig. 1) and cut the shape of a segement of a circle rotates with ball bearings about an axis, which is supported by an upright post secured to the base of the instrument. When the instrument is in position to operate, the segment of brass is located so that practically all points in the segment are at the left of the vertical line from the base to the center of axis. An ordinary spring stop holds the segment in this position. The paper test sample is fastened in a jaw secured to the right side of the upright post and also in a jaw which is directly in front of the first jaw and which is secured to the segment as shown in the photograph, Fig. 1. The test sample is cut by means of a small paper cutter.

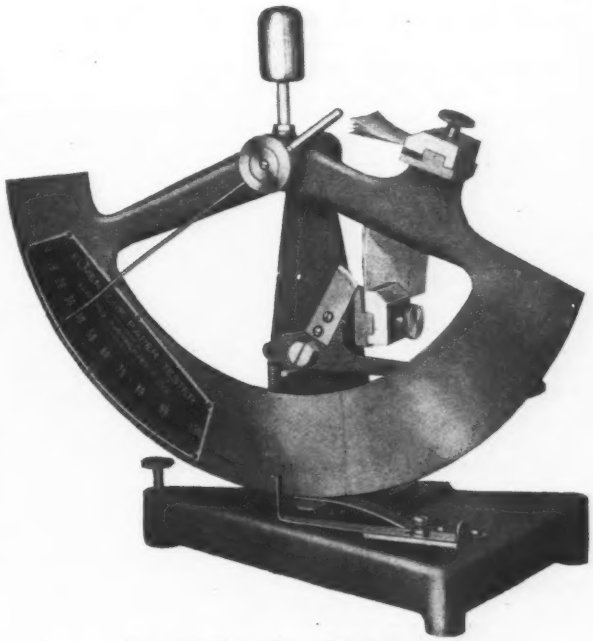


Fig. 1.—The Type III Instrument

The size of the test sample is 15.2 cm. long by 6.3 cm. wide and its shape is the following, Fig. 2:

A is fastened in the jaw secured to the segment, and B is fastened in the other jaw. A knife is attached to the instrument in such a way that it will pass between the jaws and cut slit C in the test sample. The paper is torn in the direction of the

arrows and the length of tear for a single sheet of paper is 4.3 cm. After the instrument is in position to operate and the paper has been inserted in the jaws, the stop is released, the segment falls with its own weight and the paper is torn. An indicator or pointer which is fastened to a sleeve that fits closely over the segment bearing and is held in position by the pressure from a pin (which pressure is due to a spring) denotes by its position in respect to the graduations on the segment the average tearing strength of the paper. This indicator is offset from the vertical

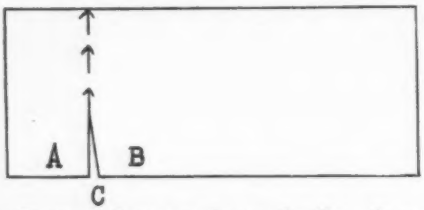


FIG. 2.—DIAGRAM SHOWING SHAPE OF TEST SAMPLE AND DIRECTION OF ONE TEAR

about 4 mm to the left and is held in this position by means of a projection on the stop all the while the paper is being torn and all the while the segment is moving from left to right.

While the segment is returning and moving from right to left after the paper has been torn it takes the indicator along with it, because of the pressure of the pin mentioned above. The stop is then immediately applied and the reading is taken from the scale. After one tear has been made on the test sample, the jaws are released and the paper is moved forward and clamped again so as to allow a second tear. As a rule, five separate tears can be made on a test sample.

Let A B C E (Fig. 3) represent the segment, when the instrument is in position to operate, A being the axis about which the segment rotates. Let A D represent the vertical from axis A and M represent the center of gravity which is located in center line A C. X Y represents the indicator which is offset to the left of the vertical by the distance K D. Assume A F G H to be the position that the segment takes after the paper is torn and just before it begins to return, moving from right to left. The center of gravity will then take the position S in the center line A G. Draw dotted line M N from center of gravity M perpendicular to vertical A D and dotted line S R from center of gravity S perpendicular to vertical A D. Let A M and A S represent the distance from axis to center of gravity.

Since the potential energy stored in the segment when at the left of the vertical is given by the product of its weight and the distance through which the center of gravity has been raised vertically, if we let W represent the weight of the segment, and N Z represent the distance through which the center of gravity has been raised vertically, we get:

Potential energy at the left of the vertical = W × N Z (1)

Since N Z = A Z — A N or A M — A N, by substituting in (1) A M — A N for N Z, we get:

Potential energy at the left of the vertical = W (A M — A N) (2)

Referring to right angle triangle A M N,

$$\text{Cos angle N A M} = \frac{\text{A N}}{\text{A M}}$$

or, A N = A M (cos angle N A M)

Substituting in (2) A M (cos angle N A M) for A N, we get:

Potential energy at the left of the vertical = W (A M — A M (cos angle N A M))

Or, potential energy at the left of the vertical = W (A M) — W (A M) cos angle N A M (3)

In the same manner and by referring to ring angle triangle A R S, we get:

Potential energy at the right of the vertical = W (A S) — W (A S) cos angle S A R (4)

Since A M = A S, by substituting in (4) A M for A S, we get:

Potential energy at the right of the vertical after the paper has been torn = W (A M) — W (A M) cos angle S A R (5)

The difference between the potential energy at the right of the vertical and the potential energy at the left of the vertical represents the amount of energy consumed in tearing the paper, or the work done.

Subtracting (5) from (3), we get:

Energy consumed or work done = (W (A M) — W (A M) cos angle N A M) — (W (A M) — W (A M) cos angle S A R)

Or, energy consumed or work done = W (A M) (cos angle S. A R — cos angle N A M)

Dividing the energy consumed or work done by the length of the tear yields the average tearing strength during the entire tear.

If we let D represent the length of tear, we get:

$$\text{Average tearing force or strength} = \frac{\text{W (A M) (cos angle SAR — cos angle NAM)}}{\text{D}}$$

By calibration of the arc (see photograph, Fig. 1) the instrument under study is made to yield the tearing force directly for 16 plies of paper.

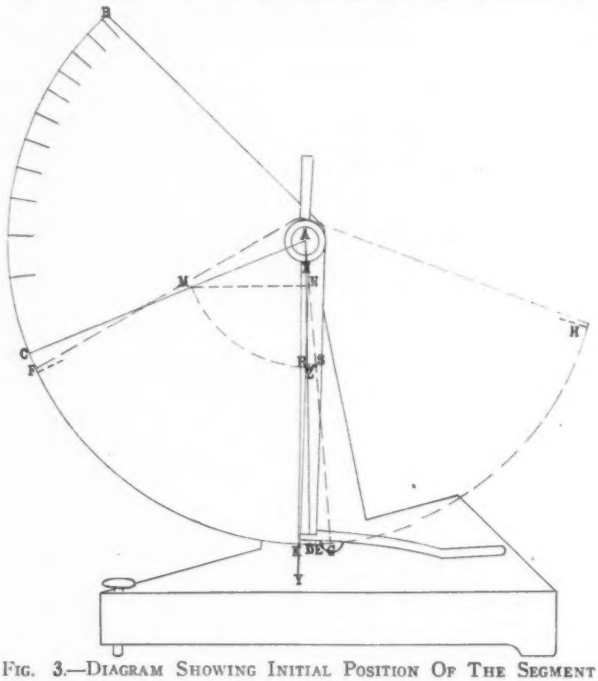


FIG. 3.—DIAGRAM SHOWING INITIAL POSITION OF THE SEGMENT BEFORE THE PAPER IS TORN, AND A FINAL POSITION THAT THE SEGMENT MAY REACH TO THE RIGHT OF THE VERTICAL IMMEDIATELY AFTER THE PAPER IS TORN.

2. Calibration Test

Before using type III instrument extensively for tearing paper, it was decided to calibrate it in order to discover whether or not

Table 1.—Results of Tearing Tests on a Series of Writing Papers in the Machine Direction, Using Different Plies

Identification No.	Kind of Paper	St. of Standard Size Ream 25x40, 500, Pounds	Average Tearing Strength								Variation of Highest and Lowest from Average	
			32 Ply, Grams	24 Ply, Grams	20 Ply, Grams	16 Ply, Grams	12 Ply, Grams	8 Ply, Grams	4 Ply, Grams	2 Ply, Grams	1 Ply, Grams	Plus, Per Cent	Minus, Per Cent
200	Bristol board	359	....	....	....	....	....	....	....	400.0	374.4	3.3	3.3
201	Bristol board	273	....	....	....	....	....	....	331.2	256.0	252.8	18.3	9.7
202	Bristol board	162	....	....	....	....	....	....	131.6	116.0	137.6	7.2	9.7
203	Ledger	160	....	....	....	....	....	....	263.6	249.6	254.4	3.0	2.4
204	Ledger	107	....	....	....	....	....	128.2	114.0	116.0	115.2	8.3	3.7
205	Ledger	96	....	....	....	....	....	167.6	160.0	153.6	188.8	12.7	8.3
206	Ledger	86	....	....	....	....	....	169.4	160.4	165.6	180.8	6.8	5.1
207	Ledger	75	....	....	....	....	94.8	94.0	90.8	86.4	97.6	5.3	6.8
208	Ledger	64	....	....	....	....	77.3	74.0	68.8	68.0	72.0	7.4	5.6
209	Bond	64	....	....	....	....	100.1	97.0	95.2	104.8	118.4	14.8	7.7
210	Bond	54	....	....	....	65.1	....	61.6	58.8	57.6	83.2	27.5	11.7
211	Bond	54	....	....	....	94.6	....	84.8	89.2	99.2	120.0	23.0	13.1
212	Bond	43	....	....	....	51.1	....	48.8	56.0	61.6	76.8	31.0	17.1
213	Bond	30	26.6	....	....	24.6	....	20.8	23.2	31.2	41.6	48.6	25.7
214	Writing	86	....	....	....	....	....	176.4	156.4	141.6	203.2	20.0	16.4
215	Writing	80	....	....	....	....	100.9	97.0	95.2	102.4	116.8	14.0	7.1
216	Writing	64	....	....	....	71.9	....	65.4	61.2	58.4	60.8	13.1	8.1
217	Writing	54	....	....	....	42.3	....	38.2	38.0	48.0	49.6	14.8	12.0
218	Writing	43	....	39.1	....	40.7	....	34.8	32.8	40.0	40.0	7.4	13.4
219	Writing	35	25.0	....	....	31.0	....	35.4	24.0	25.6	43.2	48.7	17.4
220	Printing	73	....	....	....	48.9	....	39.8	37.2	43.2	44.8	14.3	13.1
221	Printing	53	....	....	44.1	42.1	....	37.2	34.0	38.4	41.6	11.6	14.0
222	Printing	42	....	....	....	51.0	....	47.8	44.4	48.6	64.0	25.4	13.0
223	Printing	42	....	....	....	53.8	....	49.4	44.0	45.6	52.8	9.6	10.4

the numbered divisions (Fig. 1) on the segment were made correctly. This was done in the following manner: By using the above formula for the average tearing force and by determining the weight W of the segment, the distance A M from axis to center of gravity and the tearing distance D, the average tearing force was found for the different angles S A R, namely angles of 70, 65, 60, 55, 50, 45, 40, 35, and 30 degrees, the initial angle N A M always being 70 degrees. Then, by means of a circular dividing engine the angles of the arc on the segment were measured by comparison with the graduated circle on that machine. From these observations, by linear interpolation between the numbered divisions on the segment, angles measured from the zero reading on the segment were found. By comparing these results with the results obtained from the use of the formula, the instrument was found to be graduated correctly.

3. A Study of Resistance Due to Friction

After calibrating type III instrument, it was thought best to make a study of the resistance due to friction in the ball bearing of the segment and in the sleeve of the indicator. The indicator had been offset to the left of the vertical a certain distance to eliminate the error in the scale readings which would be due to this resistance. It is evident that the inventor found this distance experimentally after the arc had been graduated by offsetting the indicator from the vertical more and more until the indicator would read zero when the instrument was operated with nothing in the jaws. In fact, the inventor recommends that the base of the instrument should be leveled before operation so that the indicator will read zero. This was tried in the present study and out of ten trials there was no appreciable deviation in the zero reading. The indicator was then placed above the zero point on the scale and the segment was allowed to swing from its initial position and to continue to swing until it came to rest. A stop watch was used and the time was taken during which the segment and indicator were in motion. Ten tests were made and an average was obtained. The combined plus and minus variation of the highest and lowest from the average was figured in per cent of the average, and was found to be 17.7 per cent. The indicator was then held firmly in its initial position and the same test was repeated. In this case, the combined plus and minus variation was found to be 23.3 per cent. These variations seemed to indicate that there was a slight variation in friction in the ball bearing which variation might be due to imperfect balls. Imperfect balls might cause a slight wabbling of the segment which would cause a variation in friction in the indicator sleeve when the indicator was held firmly in its initial position. This variation in friction in the indicator sleeve probably caused the 23.3 per cent variation in the readings taken in the second test. Due to the fact, however, that in actual operation when paper is torn, the segment only swings once while in these tests it swung 1,000 times, due to the fact that the friction

Table 2.—Results of Tearing Tests on a Series of Bag Papers in the Machine Direction, Using Different Plies

Identification No.	Wt. of standard size ream 25x40, 500	Average Tearing Strength									Variation of highest and lowest from average	
		24 Ply, Grams	20 Ply, Grams	16 Ply, Grams	12 Ply, Grams	10 Ply, Grams	8 Ply, Grams	4 Ply, Grams	2 Ply, Grams	1 Ply, Grams	Plus, Per Cent	Minus, Per Cent
400	45	....	....	....	65.8	....	60.4	59.2	80.0	80.0	15.8	14.3
401	49	....	....	....	72.6	....	66.6	77.6	86.4	84.8	11.3	14.2
402	53	....	....	....	73.3	....	75.2	75.2	84.8	91.2	14.1	8.3
403	39	....	33.6	....	31.8	....	30.6	34.0	37.6	38.4	11.8	10.9
404	45	....	....	39.5	41.2	....	41.6	44.4	50.4	38.4	11.8	9.7
405	62	....	....	....	57.8	....	55.6	63.2	60.0	81.6	28.2	12.6
406	44	....	....	47.3	....	....	45.8	46.0	52.0	52.8	8.2	6.1
407	52	....	....	63.3	....	....	53.8	54.1	56.0	67.2	14.2	8.6
408	76	....	....	....	....	....	89.4	84.4	108.0	116.8	17.1	15.0
409	32	37.4	....	37.3	....	....	46.8	32.0	40.0	57.6	37.6	23.5
410	46	....	....	63.7	....	....	66.2	56.4	64.8	76.8	17.1	14.0
411	61	....	....	87.3	....	....	74.8	68.4	85.6	100.8	20.9	17.9
412	77	....	....	....	....	....	150.6	123.2	150.0	184.0	20.7	19.2
413	110	....	....	....	....	....	....	257.6	273.6	289.6	5.8	5.8
414	147	....	....	....	....	....	....	361.6	386.4	457.6	13.9	10.0
415	32	20.5	....	21.9	....	....	20.6	19.2	21.6	22.4	6.4	8.8
416	52	....	40.2	41.3	....	....	42.0	38.8	44.8	52.8	21.1	11.0
417	77	....	....	69.1	....	....	65.8	64.4	68.0	81.6	16.2	6.3
418	38	....	....	....	66.9	....	72.4	65.6	67.2	65.6	7.2	2.9
419	51	....	....	....	....	84.0	73.6	78.4	80.8	94.4	14.8	11.8
420	65	....	....	....	....	....	133.0	123.6	112.0	121.6	8.5	8.6
421	43	....	....	....	62.0	....	48.0	46.8	45.6	48.0	23.8	9.0
422	51	....	....	....	42.6	....	50.0	46.4	54.4	59.2	17.1	15.6
423	72	....	....	....	122.5	....	115.0	118.0	119.2	134.4	10.3	5.6

Table 3.—Results of Tearing Tests on a Series of Writing Papers in the Machine Direction, Using Different Plies

Identification No.	Kinds of paper	Averaging Tearing Strength: 1 Ply Average of 32 tests Grams	2 Ply Average of 16 tests Grams	4 Ply Average of 8 tests Grams	8 Ply Average of 4 tests Grams	10 Ply Average of 4 tests Grams	12 Ply Average of 2 tests Grams	14 Ply Average of 2 tests Grams	16 Ply Average of 2 tests Grams	32 Ply 1 test Grams	Variation of Highest and Lowest from Average: Plus Per Cent	Minus Per Cent
1	Bond	25.6	20.8	19.2	19.6	....	....	....	21.2	25.5	16.6	12.5
2	Writing	43.2	36.0	38.0	37.2	....	....	....	45.9	44.8	12.3	11.8
3	Bond	115.2	105.6	102.0	99.2	....	99.8	101.0	....	....	11.0	4.4
4	Printing ...	48.0	47.2	42.0	43.4	....	....	....	47.9	49.3	6.6	9.3
5	Ledger	164.8	152.0	151.2	156.4	54.7	....	....	....	....	5.8	2.9

in the ball bearing is but a small fraction of the total friction which is taken care of by the displacement of the indicator, any error that might be caused by slight variations in friction in ball bearing or indicator sleeve would be too small to be considered in an instrument of this type which is not a precision instrument.

4. Performance Test

Following the above calibration test, it was thought best to tear a number of test samples of paper on the instrument using different plies in order to determine the possibility of obtaining check results on the same identical paper. Since the instrument was calibrated to give the average tearing force for 16 plies it was necessary to convert readings obtained on the scale for lesser plies by using the necessary factors. By this method of conversion, the average tearing forces of a series of writing papers were obtained in the machine direction of the paper. The results of these tests are presented below in Table 1, where only the converted readings are given, where each result represents an average of five tests, and where the plus and minus variations of the highest and lowest from the average are given in per cent. of the average.

A series of 24 different bag papers were also torn in the machine direction and different plies were used as in the case of the writing papers. The results of these tests, representing averages of five tests, are tabulated below in Table 2 and the same per cent variations are presented here as in Table 1.

A series of 5 different writing papers were then torn in the machine direction, plies were used as before. In this case, averages of different numbers of tests employed for each number of plies are presented in Table 3.

It is evident from the above tables that check readings are not obtained by using the different plies, as is especially brought out by the per cent. variations in these tables. The instrument used in obtaining the results in Table 3 was a newer instrument than the one used in obtaining the results in Tables 1 and 2. Both instruments, however, were identical with the exception that the newer one had a better cutting knife and a better ball bearing. Due to the fact that the results of test on both instruments (Tables 1, 2, and 3) show the same effect of using different plies, it did not seem necessary to eliminate Tables 1, and 2. The tests for resistances due to friction and for calibration were made on the newer instrument.

III. Conclusions

It does not seem necessary here to attempt to explain why variations in results are obtained when different plies are used. It is sufficient for practical purposes to state that these variations do exist. In the majority of cases, Tables 1, 2, and 3, these variations seem to be too large. If this instrument is to be used to any great extent by the paper industry, it would seem well to recommend the number of plies to be used for certain grades and weights of paper. The manufacturer of this instrument has recommended that readings be taken between 10 and 20 on the scale and the number of plies be determined accordingly. In the majority of cases this will work out well because the range is small enough to allow the use of not more than two different numbers of plies. However, in the case of some heavy weight papers, (for example the ledger paper in Table 3) both one and two plies will give initial readings between 10 and 20 and when these readings are converted with the proper factors there is a serious variation between the two results. In Tables 1, 2, and 3, the results of tests on the majority of papers show that one ply gives a higher test than the other plies. For this reason, it might be well to eliminate the use of one ply where it is possible, even though it should give an initial reading between 10 and 20.

In summarizing the present supplementary study of commercial instruments for determining the tearing strength of paper, it is possible to state that the type III instrument is built on sound principles of mechanics, is calibrated correctly, and will perform satisfactorily provided certain recommedations are made mandatory in order to control test results and prevent the serious variations that different operators are very apt to obtain by using different plies in testing the same papers.

Plans for Meeting of Superintendents and Cost Men

[FROM OUR REGULAR CORRESPONDENT.]

KALAMAZOO, March 6, 1922.—The executive committee in charge of arrangements for the joint International convention of the American Pulp and Paper Mill Superintendents' Association and the Cost Association of the Paper Industry, has tackled the program problem in dead earnest and will be three or four weeks ironing out differences and scheduling the various sessions.

This convention, will be held in Kalamazoo, June 1, 2 and 3, and that period will be crowded with happenings of interest to the paper trade. J. H. O'Connell, international president of the Superintendents' Association, has received from Thomas J. Burke, international secretary-treasurer of the Cost Association, a tentative program. This was reviewed at Friday evening's meeting of the executive committee and then mailed back with suggested alterations made.

Provisions must be made to handle the joint sessions of the two organizations, also the divisional meetings, which are always a part of similar international gatherings. In addition to the business meetings, there will be the annual banquet, three noon hour luncheons, a second evening dinner and various forms of entertainment, all insuring the visitors a busy stay in Kalamazoo.

Copy is pouring in for the Superintendents' "Annual" and President O'Connell has completed arrangements to have the Kalamazoo issue printed and bound by Ihling Brothers & Everard. It is a highly interesting and instructive publication.

The importance of the meeting is evidenced by the fact that the PAPER TRADE JOURNAL, the *Paper Mill and Wood Pulp News*, *Paper*, *United States Papermaker* and other trade journals will have special men here to cover all deliberations. The PAPER TRADE JOURNAL will have three men here, including H. K. Vinton, western manager.

Complain Against Dumping Canadian Pulp

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 8, 1922.—It is understood that the Customs Service of the Treasury Department is receiving complaints under the anti-dumping law regarding the dumping of Canadian pulp in the United States. While no definite information is available here, it is understood that the Customs appraisers are holding up at least some of the pulp that is being imported into the United States from Canada.

THE USE OF FUEL OIL*

By T. S. Remsen, St. Maurice Lumber Company

When we look back not more than ten years and compare industrial conditions then existing with those of to-day we are amazed; the world we live in is so changed, that more than a generation might have passed. It is not so long since wood supplied heat, simple vegetable or animal products the light, and sufficient power could be obtained from natural forces, such as wind and water, or by human and animal effort.

With the growth of civilization, the needs of the community have become more and more complex and to meet these needs an improved supply of heat, light and power has been essential.

It was soon found that these primitive sources and forms of energy were inadequate. Coal took the place of wood as a source of heat, gas distilled from coal became the source of light and mechanical power was obtained from steam generated in coal fired boilers.

The discovery of mineral oil opened up new avenues for the production of energy. It was used first as a source of heat, also of power through the medium of steam boilers. It was only tardily realized that the products of crude oil used as a direct power producer in internal combustion engines provided means of transportation which have absolutely revolutionized the domestic and industrial life of the community.

From the time the first oil well was drilled by Col. Drake in 1859 to the present day practically all the oil has come from wells drilled to varying depths, depending upon the location of the oil sands. Obviously, as the fields grow older, the wells become more crowded, the gas pressure goes down, and initial production of the new wells drilled become less and less year by year. An ever increasing drilling program must be carried out to keep up a constant supply. If the demand continues to increase the price trend would be checked by the development of new oil fields.

The world's supplies of petroleum are to-day everywhere attracting the attention and serious consideration of Governments and industries. The continued source of supply and control of that industry, the vastly increasing demand for liquid fuel and motive power of all kinds by land and water, for power and lubrication in world factories, for lighting purposes and for surfacing the enormous road mileage which must be maintained are questions of vital interest throughout the world, and Canada points the way to a field of opportunity and effort whose importance to the country as a whole can hardly be exaggerated.

The entire consuming world will also find interest in Canada's latent resources of oil and the manifold by-products.

The prospecting and drilling activities in the vast potential oil fields of Western Canada are of greater importance than almost any other proposed line of development now being promoted in the Dominion.

Competition with the enormous output of the adjacent United States oil fields has done much to discourage production in Canada. Canada's annual oil production up to date stops short of 310,000 barrels (90 per cent from the Ontario fields). There are, however, oil possibilities in the Athabasca, Peace River of B. C., Calgary, Alba., districts and in New Brunswick and Nova Scotia.

People have feared that before long the supply would be exhausted. These fears, however, have been proved groundless. There are vast quantities of oil bearing shale rocks, and geologists say that from these shales enough oil will come to supply all the wants for many generations. To obtain the oil, shale is mined like coal and is crushed and heated in retorts, where the oil is driven off.

The foreign fields from which Canada draws crude oil principally are located in Peru (South America), Wyoming, Mid-continent, Texas and Mexico.

Transportation

It is the custom, to collect all crude produce at the wells in the various fields by means of pipe lines. These lines are divided into two classes as follows:

(a) Gathering lines which collect the crude from the various wells and transport it to a central point, there to be picked up by larger lines known as Trunk lines.

(b) Trunk lines transport the petroleum crude oil from the central gathering point either direct to the refineries or, in the case of some crudes, to a seaport where it is loaded on boats known as tankers and delivered to the refineries, the cost of transporting the crude depending entirely upon the transportation facilities.

Refining

On arrival of the crude at the refineries it is placed in large storage tanks and from these tanks it is charged currently to what are known as stills. These stills are constructed of steel and are the shape of a cylinder, being about 14′ to 15′ in diameter and about 40′ in length. Heat is applied under them to convert the crude into vapor, as each constituent or component part of the petroleum has a specific boiling point, hence it is possible to separate each part by means of fractional distillation. The vapors leaving the still are condensed by passing them through a series of pipes submerged in water and the petroleum distillates which are to be subjected to further distilling and purification are delivered from the condenser to various tanks. Fuel oil is the residual product remaining in the still after the light fractions are taken off.

Fuel Oil

The B. T. U. Value of fuel oil, or the residual product referred to above, varies to some extent according to the grade. The value of the fuel oil supplied by the imperial Oil Limited to the "Smoke-stack Trade" (power plants) averages between 18,500 and 19,000 B. T. U.'s per lb.

Various methods are used for handling and transporting the fuel oil from the refinery to users. When large quantities are required and the refiners are situated where water transportation is available the fuel oil is handled from the storage tanks at the refinery to boats by pipe line and delivered by tankers to the consignee's tanks or to tanks from which it can be shipped by short hauls by rail. The fuel oil when purchased in smaller quantities is shipped in tank cars, or, when smaller than tank car lots are required, it is filled in barrels, although the latter is an expensive way of shipping this particular grade of oil.

Storage

The question of oil storage is generally looked upon from one of two extreme angles—either as a most hazardous proposition or as so simple a matter as to be worthy of little consideration. To a certain extent both views are reasonable—the former, if accompanied by gross carelessness; the latter, if over-extreme care is used. Fuel oil is not subject to spontaneous combustion nor will it ignite when in bulk form. The danger is due to the tendency it has to vaporize, under high temperatures and form an explosive mixture with the air. As a rule these will not occur unless the flash point is approximated. The oil in a storage tank should be kept as low as possible and still flow properly for pumping.

The size of storage tank required depends on the quantity of oil to be burned and availability of oil supply. The second factor

*Paper read at the annual meeting of the Technical Section of the Canadian Pulp and Paper Association.

depends in the location of plant, the method of delivery and the probability of interruptions in delivery which must be carefully considered in determining the number of days' oil supply that should be carried at the plant. The storage should be divided into two or more tanks so as to enable shutting down for cleaning without interfering with operation of entire plant.

In built up districts within fire limits tops of tanks must be at least three feet below level of fireroom floor. The tank must be covered with soft earth or sand.

One of the largest reinforced concrete, underground fuel-oil tanks in existence is located at the plant of the St. Maurice Lumber Company, Three Rivers, P. Q. It is divided into four parts and has a capacity of 160,000 barrels. The tank steamers dock at the Company's wharf about 400 ft. distant. From this location the ship's pumps discharge the oil at a temperature of about 90° F. through a 12" pipe to the storage reservoir. The most important problem in the construction of concrete tanks is to determine properly the concrete mix with the given aggregates that produce an oil-proof, non-porous concrete of high compressive strength unaffected by temperature variations.

To test the oil proofing quality of the concrete, a test box, three feet cube, was poured with 9" walls; after setting thirty days, it was filled with oil and subjected for five days to a pressure equivalent to a twenty-seven foot head or 50 per cent more than working conditions. The box was broken up and the water-proofing was placed on inside of tank walls.

Many power plants are provided with a service tank located under the fireroom floor, in addition to the main storage tank outside the building. The service tank is filled at intervals from the storage tank, and the oil pumps take their supply from the service tank and distribute it to the oil burners.

Oil to Atomizers

In practically every fuel-oil installation it will be necessary to use pumps to transmit the oil from service tanks to burners. A certain amount of pressure will be required depending on the class of burners, grade of oil, number of burners to be used and the quantity of oil to be burned. The pressure will also give proper control of oil flow whatever conditions demand. This is done by two duplex piston pumps, one serving as a spare, having strainers in suction and discharge. Between the pumps is a combined receiver and heater for raising the temperature of the oil. In general oil should be heated nearly to its flash point to insure complete atomization.

Atomizers

Atomizers are devices for reducing oil to vapor and are generally termed burners. The gauge of efficiency by which they are measured, is the amount of energy expressed in foot pounds used in the device to reduce a given volume of fuel oil to a vapor and at the same time be capable of manipulation, regulation and adjustment to meet plant or operating conditions. Its efficiency will be influenced by that of the furnace and how, when and where air is admitted and united with the oil vapor and the personal equation.

In one type of burner the steam and oil come in contact, the oil is atomized and the mixture issues from the burner tip ready for combustion. The burner requires for its operation about two per cent of the steam generated by the boilers and produces a flat flame, with the result that a considerable portion of the volume of the furnace is not made use of.

The mechanical atomizer of the usual design has a decided limitation in range. Unlike the steam atomizer, it cannot be operated at low capacity if it is designed for a high one. The burner depends for its atomizing effect on centrifugal force induced by giving the oil a rapid whirling motion in the central chamber of the tip. Means are provided inside the nozzle to give the oil a whirling motion of sufficient intensity to make it fly into a spray as soon as it leaves the nozzle. The pressure should be at least 25 lbs. to produce good atomization and it may be increased up to 200 lbs. and a temperature of 150° F. is required to atomize the oil properly.

The principal advantage is that a large quantity of oil can be burned in a furnace of a given volume on account of the nature of the flame produced, also steam is saved which would be used to atomize in the other type of burner and this is of importance in marine work where it means a loss of fresh water as well as a loss of steam.

Furnaces

The cooling of the gases by their coming in contact with the boiler tubes before the combustion is completed is one of the principal causes of low efficiency in boilers that are forced up to high capacities, and any method of combustion that prevents this occurring tends to improve the efficiency of the boiler.

Complete combustion depends on the extent of mixing the oil vapor with air, time available for such mixing to be complete and temperature in furnace at time of mixing.

Best results are gained by installing the burner so that the direction of the flame is toward an increasing volume of furnace. This will allow free expansion and complete mixing of the oil vapor with the air. To accomplish this in certain types of boilers it might be necessary to install the burners at the rear of the furnace and the checker work under the burners that control the admission of air must be properly designed.

In order to operate oil burning boilers at high capacity it is necessary to provide ample furnace volume. It is possible with steam atomizing burners to burn as high as 6 to 7 pounds of oil per hour per cu. ft. of furnace space. Three or four pounds gives best efficiency and 60 to 70 cu. ft. per burner will generally give good combustion.

Hazards

Most accidents in oil burning plants are caused by flarebacks, these usually occur when lighting up and can be prevented by frequent inspections of burners and feed piping for leakage. It is good practice to blow steam or air through furnace to drive out the oil vapor before lighting the burners. Occasionally a flame may be extinguished through some accident, at such time valves should be closed immediately before oil has a chance to accumulate and cause back flare.

Advantages

A few of the advantages in the use of oil as fuel:—

(1) General cleanliness.
(2) High boiler and furnace efficiency.
(3) Ability to carry overloads and meet, almost instantly, wide ranges in load.
(4) Total absence of smoke, small dust and ashes.
(5) Uniform draft and air supply, giving minimum variation in furnace temperature.
(6) No loss when stored indefinitely. Freedom from loss due to moisture and absolutely uniform quality, every pound of oil containing the same number of heat units which can all be converted into heat without waste.
(7) Storage in any convenient place.
(8) Low cost of handling. The labor required in the operation of an oil fired plant would average two-thirds less than that required in a coal fired plant.
(9) Saving in floor space.
(10) Economy of construction.

Disadvantages

(1) Difficulty of obtaining oil supplies.
(2) Cost.
(3) Danger from inflammable vapor caused by oil leakage.

(4) Risk of oil leaking into steam side of heater and finally entering boilers.

In discussing the advantages of oil as fuel the question naturally arises as to how it will compare with coal on a cost basis. For purposes of comparison, data were obtained from two plants having similar installations and operating under like conditions of load and climate. These data were taken from actual running conditions at the mills and consequently should form a reliable basis on which to compare the two classes of fuel.

The coal fired plant from which the data were obtained is equipped with eight Babcock & Wilcox water tube boilers installed in batteries of two. Each boiler is rated at 500 H.P. They are equipped with automatic stokers of the moving chain grate type which permits a very close regulation of the fires. They are also equipped with automatic feed water regulators, superheated coils and economizers. The amount of coal used is accurately weighed and the coal is tested at regular intervals for its basic properties. The flow of steam is measured with "Bailey" meters and accurate records kept.

The oil fired plant also has Babcock & Wilcox boilers, the same size and number, and installed in a similar manner to the coal fired plant. They are provided with efficient oil burning equipment and consequently have a much larger combustion chamber than is used in a coal burning boiler. They also have automatic feed water regulators and superheater tubes but on account of the low temperature of the flue gases produced in an oil burning plant, have no economizers.

The quantity of oil pumped to the boilers is measured by a registering meter and the total steam generated is accurately measured with recording meters. Meters are used on each boiler to record the temperature of the flue gases, the amount of CO_2 in the flue gases, the amount of draught and the steam flow from each boiler.

The following tables have been compiled from the results obtained in the plants described.

COAL FIRED PLANT.

Basic Properties of Coal.

Moisture	8.21%
Ash	12.28%
Fixed carbon	49.98%
B. T. U.	12,753

Plant Conditions.

Steam pressure	150#
Degrees of superheat	150°F
Feed water entering economizer	174°F
Feed water entering boiler	235°F
Flue gases entering economizer	526°F
Flue gases leaving economizer	108.7%

Operation.

Equivalent evaporation	8.92#
Average hourly production	100,000#
Over-all efficiency	73.8#
Steam used in boiler house	6.23%
Cost per 1000# steam generated:	
(a) Coal	$.601
(b) Labor	.063
(c) Repairs	.030
Total	$0.694
Cost of steam per 1,000# delivered from boiler house....	$0.737

OIL FIRED PLANT.

Basic Properties of Oil at 60° F.

Moisture	Trace
Sediment	Trace
Specific gravity at 60° F.	.958
Flash point	239°F
B. T. U.	18,170

Plant Conditions.

Steam pressure	110#
Degrees of superheat	100°F
Feed water entering boiler	176°F
Temp. flue gas	450°F
Temp. oil at burner	150°F
Draught	.11"
Average rating	108.7%

Operation.

Equivalent evaporation	14.94#
Average hourly production	41,000#
Over-all efficiency	79.8%
Steam used in boiler house	12.98%
Cost per 1000# steam generated:	
(a) Oil	$.419
(b) Labor	.033
(c) Repairs	.006
Total	$0.458
Cost of steam per 1000# delivered from boiler house..	$0.517

The above figures are based on coal at $10.50 per ton in hopper over boilers and oil at $2.30 per barrel delivered in storage tanks.

To illustrate the relative fuel values of oil and coal the following concrete example is worked out using the data of the foregoing table.

Coal.—12,753 B.T.U. Moisture, 8.21 per cent. Efficiency, 73.8 per cent. One ton of coal as delivered contains $2000 \times 91.79 = 1835.8$ lbs. dry coal which contains $1835.8 \times 12.753 = 23,411,957$ B. T. U. The plant being 73.8 per cent efficient, then $23,411,937 \times 73.8 = 17,178,024$ B. T. U. are turned into useful work.

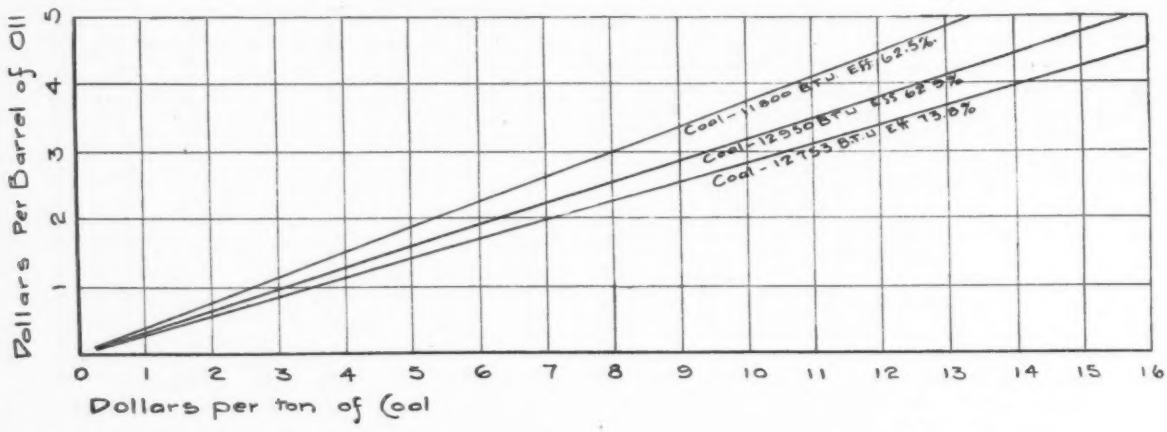
Oil.—18,170 B.T.U., moisture nil, efficiency 79.8%. One barrel of oil contains 34 Imperial Gallons or 336#, or one barrel of oil contains $336 \times 18,170 = 6,105,120$ B.T.U. The plant is 79.8% efficient. $6,105,120 \times 79.8 = 4,871,885$ B.T.U. are turned into useful work.

Continuing these figures and applying the cost of each fuel, the following graph has been plotted from which a close approximate ratio between the cost of coal and oil can be determined. In this graph it is assumed that all oil-burning boilers will give an efficiency of 79.8%.

Where it is necessary to operate the plant at no load and be ready to pick up the load at any instant, the boilers must be kept hot even though no steam is generated. With coal fires this is accomplished by keeping a banked fire on the grates. With oil the fire is put out completely, and when the steam pressure in the boiler has dropped as low as permissible, the fire is relighted and the steam brought back to full pressure. During the time the fire is out the damper may be shut tight, thus materially reducing the loss of heat. In a boiler with good tight dampers the drop in steam pressure will not be more than 10# to 15# per hour.

Approximately fifty textile mills, with over 400 boilers, were converted from coal to fuel oil during 1920, making a total of 145 textile mills in New England and New Jersey, with 850 boilers and 175,000 rated H.P. that are using fuel oil.

Deliveries of fuel oil to merchant vessels in 1920 at Atlantic Coast points totaled 19,326,410 barrels, representing largely Mexican oil. Theoretically the proposed tariff of $1.50 per barrel levied against Mexican oil in U. S. would cause the use of domestic oil



and stop the importation of the Mexican product. Continued trouble in England with labor and coal production has resulted in systematic attempts largely to substitute oil for coal in British industrial plants. The situation is graphically explained in the statement that the average annual coal output per miner in Great Britain is 193 tons, whereas in the U. S. the annual output per miner is 889 tons. British industry cannot successfully compete with this terrific labor handicap. Labor conditions in the oil industry have always been stable and dependable. With an embargo against the use of Mexican oil in the U. S., Great Britain can profit immensely by the near monopoly of Mexican oil they would enjoy.

USE OF LATEX RUBBER IN PAPER MANUFACTURE

WASHINGTON, D. C., March 8, 1922.—The paper trade will be much interested in a report which the Department of Commerce has received from an American Consul regarding the possibilities of rubber latex in the manufacture of paper. The Consul in his report to the department says:

"As a direct result of the continued depression in the crude rubber market and the efforts that would naturally be made to find new outlets for the plantation products, a new use for rubber latex in the manufacture of paper seems to have been discovered. Frederick Kaye is responsible for the discovery and has patented his process.

"It is claimed for the new discovery that it will not only reduce the cost of paper manufacturing materially and simplify paper-making methods, but that it will greatly improve the quality of the product. For example, Mr. Kaye claims that by his process the effect of introducing even very small quantities of rubber into the manufacture of paper from some fibers is to produce a rubber paper possessing considerably better physical qualities than that made from the same fibers by the usual processes.

"Experiments were made to show that with an ordinary fiber made into paper containing one-tenth of 1 per cent of rubber the product had a folding number of 5,000 to 6,000 and a tensile strength two or three times that of the same material made without rubber. But with a rubber content of about seventy-five one-hundredths of 1 per cent. the folding number reached 14,500, while the same paper made in the usual manner had a folding number of 30.

"Another fiber beaten for half the usual time into a paper containing 1 per cent. of rubber had a folding number of 72,500 and a tensile strength of 87 pounds for a strip 1 inch wide, equal to 6,600 pounds per square inch, or about twice the strength of a well vulcanized rubber compound, such as is used in tires, for example. The bursting strength was about 40 pounds for a thickness of one-tenth of a millimeter."

The Paper Division of the Department of Commerce has just received the patent specifications regarding this invention, which are as follows:

"I, Frederick Kaye, English nationality, The Laurels, Park avenue, Ashton-on-Mersey, Cheshire, Rubber Technologist and Research Chemist, do hereby declire the nature of this invention to be as follows:

"This invention consists in using any natural india-rubber-containing latex, or any india-rubber-containing latex preserved by ammonia, formaldehyde, and the like in the manufacture of paper to be made from the usual paper-making materials as cotton, linen, jute, flax, wood and wood-pulp, and any other vegetable or animal fibers, as well as such mineral fibers as asbestos, with any mineral fillers as china clay and the like.

"The india-rubber-containing latex to be added in suitable quantity according to the quality of the paper to be made and the nature of the fibres and other materials used in the composition of the paper.

"The india-rubber-containing latex to be added after the beating of the pulp has produced a satisfactory condition of the pulp as required to produce the quality of paper aimed at.

"After thorough mixing of the india-rubber-containing latex with the pulp, a coagulative agent for rubber latex, according to nature and state of the latex, may be added such as acetic acid, formic acid, or any other suitable organic acid or mineral acid, or small quantities of mineral salts.

"When a satisfactory coagulation has been effected the contents of the beater can be transferred to the cisterns and the material run through the paper-making machine in the ordinary manner. The dried paper can afterwards be vulcanized by any suitable process.

"It is also claimed in this invention to use gutta-containing latex and balata-containing latex for paper-making or these latices mixed with each other or with india-rubber-containing latex in the same manner as set forth with regard to use of india-rubber-containing latex for paper-making.

"The paper produced by this invention is remarkably strong both with regard to tensile strength and as to resistance to abrasion and repeated bending while under tension.

"By the use of india-rubber-containing latex, gutta-containing latex and balata-containing latex, lower grade fibers may be profitably used for the purpose of paper-making."

CURRENT PAPER TRADE LITERATURE

Abstracts of Articles and Notes of Papermaking Inventions Compiled by the Committee on Abstracts of Literature of the Technical Association of the Pulp and Paper Industry

The Properties of Paper Pulps.—E. Arnould. *Papier,* xxiv, 241-243 (June, 1921).—Discussion of the necessity of treating the various pulps in such a manner as to preserve their characteristics and make the most of their qualities according to the nature of the paper which is required.—A. P.-C.

The Electrolysis of Alkali Chlorides.—R. Moritz. *Chimie et Industrie,* v, 636-641 (June, 1921).—Notes on the operation of Type Pbf. B. Moritz cells, under conditions where electric current was relatively expensive, coal very expensive, salt fairly cheap, while the caustic soda could be used dilute and containing large amounts of salt. If the concentration of the liquor is allowed to fall in the cell, the voltage rises, the current and energy efficiencies drop, the quantity of water to be evaporated from the caustic soda is increased, and the loss of chlorine through the diaphragm increases. Increasing the current density increases the power consumption and also the wear on the graphite anodes. The latter may be reduced by placing the electrodes close to each other, impregnating the anodes to prevent penetration by the liquor, and completely removing sulphates from the brine and preventing the formation of chlorates. The diaphragms must be so constructed that the coefficient of filtration at the top is about the same as at the bottom, and that it remain approximately constant despite the gradual clogging up of the pores. By protecting the diaphragm with a coarser filtering surface and by maintaining a warm moist atmosphere on the side of the cathode which is not working, the life of the diaphragm is considerably prolonged.—A. P.-C.

Paper Making Trials at the Imperial Institute: A Comprehensive Review of Plant Fibers for Paper Making. C. W. West. *Paper,* xxviii, 28-31 (May 18, 1921), 25-27, 39 (May 25, 1921). A review of the more recent work of the Imperial Institute (from about 1912) on the following paper making fibers: *Andropogon hirtifloris,* aninga stems (*Montrichardia arborescens*), bamboo grass (from Northern Territory, Australia), baobab (*Adansonia digitata*), black wattle (*Acacia decurens,* var. *mollissima*), bourdie grass (*Typha* sp.), *Brachystegia Randii* bark ("musasa"), *Cymbopogon Ruprechti, Cyperus alepecuroides, Ecdeiocolea monostachya* leaves, *Hibiscus filiaceus,* Linn. ("vau"), Johnson grass (*Sorghum halepense*), kokerboom (*Aloe dichotoma*), lalang grass (*Imperata arundinacea* Cyr.), linseed stalks, matai or black pine (*Podocarpus spicatus*), muguguboya bark, mungongo wood (*Ricinodendron Rautanenii*), *Neoboutonia macrocalyx,* Panicum obscurens, papyrus (*Cyperus papyrus*), rice straw, rice husks, sunflower stems, tabocca brava (a Brazilian bamboo), tambookie grass (*Cymbopogon Nardu,* var. *vallidu*), *Andropogon dregeanus* (Nees), *Andropogon auctus* (Stapf), thatching grass (*Andropogon Buchananii*), *Themeda forskalii* var. *mollissima, Trachypogon polymorphous, Tristachya rehmonii.*—A. P.-C.

Press Room Requirements. S. M. Williams, New York *World. Paper,* xxviii, 14-16 (July 20, 1921). A discussion from a printer's point of view of the principal causes of damage to news print, which are: (1) Bad splices, (2) poor winding, (3) improper wrapping, (4) careless loading, (5) rough handling and trucking, (6) press room operations.—A. P.-C.

Purchasing. .A. B. Johnson, Purchasing Agent, Pejepscot Paper Company. *Paper,* xxviii, 17-19, 28, 38 (July 13, 1921). Discussion of the various functions of a purchasing department, and of the best means to be taken by the purchasing agent to properly fulfill them.—A. P.-C.

The Manufacture of Paper in France. Andre Navarre. *Monit, Papeterie Française,* lii, 388-391 (July 1, 1921); *Papier,* xxiv, 297-299 (July, 1921). A discussion of the possibility of manufacturing ordinary print and book papers in France, showing that France is in as good a position as Germany and England, if not better; but that it is necessary to give the industry adequate tariff protection to prevent it from being flooded by cheap papers from Canada, the United States, Scandinavia and Finland.—A. P.-C.

Notes on Two Causes of Waste on Paper Machines. E. Marguet. *Papeterie,* xliii, 530-533 (June 25, 1921).—Paper is usually fed to revolving or fly knives by means of two cast-iron cylinders, which are as wide as the sheet but which bear on each other only by means of a slight swelling about 20-25 inches long in the middle of the upper roll. The eight or ten sheets which are usually fed simultaneously are thus subjected to a very heavy pressure at this point, and if they do not arrive at the rolls perfectly smooth and flat there is every chance that there will be numerous creases. This is especially noticeable when the rolls have not been properly wound and results in a large amount of waste. In one case the formation of a large amount of creases was traced to the following cause: in the manufacture of parchment paper the stock could not be beaten as much as would have been desirable, and the incompleteness of the beating was compensated by moistening the sheet considerably and strongly heating some of the calender rolls. The bronze plate which lay under the wire under the slices had been grooved due to uneven wear by the wire, and with the relatively free stock that was being used this caused uneven draining and resulted in the formation of numerous creases. After planing the bronze plate the formation of creases ceased.—A. P.-C.

Qualities of Raw Photographic Stock. *Papeterie,* xliii, 533-534 (June 25, 1921). The qualities required of raw photographic stock depend on the photographic process for which it is required, and these may be classed as follows: (1) Paper destined to receive the image directly (platinum papers, blue-print papers); (2) papers which are to serve as a base for an intermediate coating of baryta which receives the image (celloidine papers, bromide papers, etc.); (3) papers which receive temporarily the sensitized coating (pigment papers, etc.). It is evident that class (1) papers require exceptionally pure stock, and more particularly they must be as free as possible from metallic impurities. All papers intended to receive a photographic image directly and permanently should be made entirely from high grade rag stock. Certain heliograph papers (for copying), which receive the sensitized coating only temporarily, can be made partly from chemical pulp. Paper coated with baryta can contain up to 40 per cent of very pure chemical wood pulp. Decomposed animal size discolors the images (reddish with silver images and blue-black with platinum images). As a rule raw photographic stock is given three coatings of barium sulphate and gelatine and is then coated with the sensitized emulsion.—A. P.-C.

Professional Forestry Education. C. E. Lane-Poole. *Australian Forestry J.,* iii, 217-223 (1920); *Botanical Abs.,* viii, 10-11 (May, 1921). A paper read at the Hobart Forestry Conference. The author advances arguments for the establishment of a federal forestry school organized along the lines of the French school at Nancy, considered as the best of its kind in Europe. The curriculum, faculty, terms, fees, and certain other details of organization are discussed. New South Wales, on account of the great diversity of its forest conditions, is suggested as the most desirable state in Australia for the school.—A. P.-C.

Snow Breakage and Top Rot in Spruce. Torsten Lagerberg. *Meddel. Statens Skogsförsöksanst,* xvi, 115-162 (1919); *Botanical Abs.,* viii, 22 (May, 1921). Working plans are often seriously disrupted by snow damage. The calculated annual yield may be greatly increased by salvaging fallen or badly injured trees. Even uninjured trees must sometimes be cut in order to save them from windfall or drought. Until recently it has been a difficult problem to decide what character and degree of damage is permissible in trees which are left. The present investigation shows that broken stems are almost invariably attacked by rot and should therefore be removed from the stand. The rot progresses more rapidly in rapidly growing than in slow growing trees. Callus and exudations from the wound may delay and in rare cases prevent infection.—A. P.-C.

Reshaping the Forest Policy of the United States. J. W. Toumey. *Sci. Monthly,* xii, 18-35 (1921); *Botanical Abs.,* viii, 27 (May, 1921). The failure of the U. S. to retain control of the forests and the consequent exploitation by private owners without reference to the continuance of the forest has resulted in an acute situation. The lumberman and the paper manufacturer, as well as the forester, are beginning to realize the necessity of a change, especially in view of the increasing price of forest products. Three leading policies are now before the country: (a) The program of the committee of the Society of American Foresters; (b) the program of the American Paper and Pulp Association and various lumber interests; (c) the program of Col. H. S. Graves, former chief of the U. S. Forest Service. These do not differ in desired results, but in methods of attaining them. The first proposes that laws be enacted by Congress imposing severe penalties on private owners who do not organize their property and practice forest renewal. The second insists that through cooperation and financial assistance the nation and the states make sustained yields on privately owned forests attainable without loss to the owner. The last urges that the state enforce mandatory regulations and provide adequate assistance in cooperation with the National Government to make forest renewal certain. This plan would necessitate effective measures for organization, police regulations for fire control, effective disposal of slash in all cutting operations, establishing cutting methods suited to each forest type.—A. P.-C.

Forestry and the Forest Outlook in the United States of America. Helge Sylven. Skogen, vi, 257-271, (1919); *Botanical Abs.,* viii, 27 (May, 1921). The article gives a survey of the country's original and present timber resources; it rehearses the well known story of forest devastation which has led to the present agitation for a national forest policy. The provisions of the policy proposed by the U. S. Forest Service are outlined. Cnsiderable space is given to the organization of the Forest Service. The author welcomes the entrance of the United States into the field of forestry as an important step toward the welfare not only of the country itself but of the entire world. Expression is given to the idea that the forest question before the industrial world is no longer one of commercial competition but how best to meet the problems of production, distribution and utilization with a view towards supplying the needs of all countries. It is prophesied that the United States will rapidly take a place with European nations in the practice of forestry once the control of forest affairs is placed in the hands of the American foresters to whose ability and enthusiasm he pays a high tribute.—A. P.-C.

The Utilization of Bamboo for the Manufacture of Paper Pulp. R. S. Pearson. *Indian Forester,* xlvi, 547-561, 603-631 (1920); *Botanical Abs.,* viii, 24 (May, 1921). Data are given on the probable yields, costs of extraction, location of mills, etc., for the various localities in India where pulp material exists in sufficient quantity to warrant the establishment of pulp mills.—A. P.-C.

Increment Per Cent of the Form-Height in Pine Stands in Sweden. Sven Petrini. *Meddel. Statens Skögsförsöksanst,* xvi, 184-187 (1919); *Botanical Abs.,* viii, 25 (May, 1921). Volume increment per cents are calculated from the basal area increment per cent and the "form-height" increment per cent. The latter term expresses the product of height and form factor. If tables of "form-height" increment per cent are available the increment per cent may be ascertained by merely measuring diameters. Jonson has prepared such tables for pine in central Sweden. Petrini, following Jonson's procedure, has prepared similar tables for northern Sweden, where the pine has a different form. The method, which is briefly described, involves the measurement of heights and the determination of "mean form class" by means of the "form-point" and Jonson's function between "form-point" and "form-class."—A. P.-C.

Progress of Forestry Under Independent Management in New South Wales. R. Dalrymple Hale. *Australian Forest. J.,* iii, 151-156 (1920); *Botanical Abs.,* vii, 17 (Feb., 1921). A record of established progress in forest management by the Forestry Commission of New South Wales following a needed reform is given under these topics: Classification, demarkation and organization, fire protection, utilization and regeneration of hardwood forests, publicity work, forest grazing, forestry statistics, forestry education, coniferous plantations, research, and forest revenue.—A. P.-C.

Growth and Wind. Bernbeck. *Forstwiss. Centralbl.,* xlii, 27-40, 59-69, 93-100 (1920); *Botanical Abs.,* vii, 14 (Feb., 1921). The author discusses the adaptation of vegetation to wind and the effects of wind on vegetation, with especial reference to forest growth. Adaptation is to enable the plant to withstand the physical impact of wind, or to prevent excessive evaporation from the plant tissues, or both. Wind-firmness is not an inherent characteristic of any given species, although the tendency of wind-firmness may be inherited; thus a fir grown in the open may be much more wind-firm than an oak grown in a dense stand and protected from wind. Under the right conditions any tree can develop a wind-firm form. This fact can be utilized in silvicultural management, so as to minimize loss from windfall. (35,000,000 cubic meters of timber, principally coniferous, was blown down in Germany during the last century.) Wind climate often governs the geographical distribution of trees. For instance, conifers are most liable to injury during the winter months; so sites exposed to continuous winter winds (if fertile enough to allow tall tree growth) are usually occupied by hardwoods, while mountain slopes and plateaus where heavy early summer winds prevail are occupied by conifers. Wind affects the form and growth of trees not only indirectly, by its influence on such site-factors as soil moisture, transpiration, temperature, and exposure of foliage to the light, but also directly by its effect on the plant tissues. Internal stresses and friction between the fibers result in eccentric growth, and also help to stunt the tree by interrupting sap-flow and by affecting cell-structure and turgescence. Investigations made at Bonn showed clearly that the stunting effect of wind increases rapidly with wind velocity.—A. P.-C.

New Members of T. A. P. P. I.

The following have been elected to membership in the Technical Association of the Pulp and Paper Industry:

James H. MacMahon, Mathieson Alkali Works, Niagara Falls, N. Y. Active.

Clarence E. Kinney, Naval Stores Division, Hercules Powder Company, Wilmington, Del. Active.

A. Papineau-Couture, Department of Health, 317 Queen street, Ottawa, Ont. Active.

L. M. Booth, Booth Chemical Company, Elizabeth, N. J. Active.

M. B. Littlefield, Arrowhead Mills, Inc., Fulton,, N. Y. Junior.

O. F. Bryant, Laurentide Company, Ltd., Grand' Mere, Que. Active.

Parker K. Baird, Inland Empire Paper Company, Millwood, Wash. Transferred from Junior to Active.

CONDITIONS STILL SPOTTED IN BOSTON PAPER MARKET

Some Houses Are Doing a Good Business While Others Are Complaining of Hard Times—In General, However, Business Is Not Brisk—Distributors Seem to Have Themselves Well Loaded With Supplies and It Is Believed That There Will Be No Active Demand for Paper Again Until These Have Been Absorbed—Board Business Is the Quietest in Months.

[FROM OUR REGULAR CORRESPONDENT.]

BOSTON, Mass., March 8, 1922.—Paper merchants in this city are divided when it comes to expressing opinions on business conditions. A careful survey of the situation here, however, shows that there are bright spots and dull spots—a "spotted" market at best. There are certain houses always doing good business—there are those who are "howling" hard times.

Business in general is not brisk in this section. The spurt in January and in February, coupled with the talk of possible advance in prices resulted in shelves being well loaded. These supplies are still on the shelves and it will be at least two more months before an active demand for all classes of paper will be made again, according to one well known buyer.

Even the printer is drumming up trade by the direct-by-mail advertising route. But it has to be done. Fine grades houses are the only ones enjoying anything like a normal business. There is a more active tone in paper stock circles. Ten cars of mixed papers were offered at $9 to one dealer this week and were quickly sold.

Other branches of this business also show more signs of activity. The price situation has not changed to any extent in this section. Boston dealers in paper stock have watched the New York prices "soften" this week but when asked what the chances were of similar action in this section, replied, "Not a chance."

Board Business Quietest in Months

The box board business is the quietest in months. All spring business has been cared for. Mills are running less than 50 percent. The candy business is unusually quiet—the shoe business still unsettled due to labor grievances and the like, and the same condition exists in many of the other allied trades—all of which affect makers of paper boxes.

One well known manufacturer said today: "There are mills that will close rather than go below a $37.50 price for chip. It would be easier and cheaper for us to shut down than to go out and try to cut prices. That briefly is the situation in this branch of the game."

General News of the Trade

W. F. MacQuillan, treasurer of A. Storrs & Bement Company, attended the meeting of the National Paper Trade Association in New York this week.

John Carter & Co. is pushing "Bankers Linen" this week with great success. It is a special typewriter brand and is proving a fine seller.

Boston Graphic Arts Exposition

A showing of every grade of paper and cardboard is planned for the Boston Graphic Arts' Exposition at Boston, August 28 to September 2, 1922. Paper manufacturers and dealers will exhibit the raw materials, show the manufacturing processes and the finished products on a scale never before attempted.

This opportunity for paper buyers and members of the International Association of Printing House Craftsmen to get a complete education in the manufacture and use of paper will be taken full advantage of, and the result should be of inestimable value to all of them.

Addresses on paper subjects will be included in the convention program and these addresses will be printed and sent to the membership as part of the record of the proceedings.

Paper manufacturers and dealers are showing a keen interest in this display as they appreciate this opportunity to participate in a graphic arts' exposition at which their products are given appropriate attention and prominence.

For the first time at any exposition there will be a complete working unit of a folding box-making plant. Large cylinder presses will be run on two-color, folding boxes for a local manufacturer. Cutters and creasers, glueing machines, bundle tyers and baling machine complete this unit. Great increase in this character of printing recently makes this exhibit timely and interesting to printers. A large number of craftsmen working in paper box making plants are members of the Craftsmen Association.

Miami Valley Superintendents Meet

MIDDLETOWN, Ohio, March 6, 1922. On the evening of February, 25, the Miami Valley Division of the American Pulp and Paper Mills Superintendents' Association gathered for their monthly meeting at the Elks' Club.

H. P. Carruth, general manager of the Mead Pulp and Paper Company, of Chillicothe, Ohio, was the guest of honor and principal speaker. Mr. Carruth and Tom Harvey, of the Gardner-Harvey Paper Company, of Middletown, Ohio, were delegates from the Miami Valley Paper Makers' Association, visiting the superintendents with the idea of learning their ideas of the best way to utilize the technical books on paper making which have been compiled within the past year through the efforts of the Technical Association of the Pulp and Paper Industry. Mr. Harvey said that educational help is available without cost from the local teachers, the federal and the state governments, and it is hoped that with these sources to draw upon, it will be possible to form classes, or teach the contents of the five books by methods similar to those used by correspondence schools.

George Harvey, also of the Gardner- Harvey Paper Company spoke on the necessity of standardizing the sizes of paper makers' felts and offered data sheets for the inspection of the superintendents, and asked if in their opinion the data sheets were complete, and whether they carried any unnecessary information. An attempt is being made by felt manufacturers to get the paper mills to use a uniform specification sheet for their orders and to eliminate the odd sizes of felts, as far as possible. All this, say the felt men, will be effective in lowering the price of felts.

The fourth speaker was F. C. Farnsworth, president of the Farnsworth Company, of Conshohocken, Pa. His subject concerned the economy of steam as applied to the proper drying of paper.

The next meeting of the superintendents' association will be held in Middletown, Ohio, on March 25, and the place of the meeting will be announced later. It had not been decided by the committee in charge of the next meeting whether it would be held in the hall of the Gardner-Harvey Paper Company or in the same room in the Elks' Club, due to uncertainty as to whether the Gardner-Harvey room would be ready by March 25.

Orders Irregular for Paper Makers' Wires

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., March 6, 1922—The Appleton Wire Works plant is operating at about 65 percent of its capacity, it was learned last week. Business is a little better than in the last six months of 1921 but the future still appears to be dark. It is said orders are being received regularly and at times there is enough work to keep the entire plant busy and at other times production is at a standstill.

PAPER DEMAND IN CHICAGO STILL RATHER SPASMODIC

Buying Has Shown Some Signs of Improvement—General Feeling Is Optimistic Although Progress Is Slow—The Demand Appears to Be Very Irregular Even Though It Is Steadily Increasing—Betterment in Advertising Field Expected to Expand Demand—Agitation Over "Long Price List"—Necessity for Co-operation Between Jobbers and Printers—General News of the Trade.

[FROM OUR REGULAR CORRESPONDENT.]

CHICAGO, March 6, 1922.—With business conditions here continuing along the same lines as they did during the last few days of February, when buying was said to have shown signs of improvement, the trade here is rather optimistic. Business in general among the local paper houses is reported fair. Buying is still being done on a basis of immediate demand but this demand seems to have picked up to some extent in the past few weeks. The movement of paper in this market is said to have improved quite a little recently, but the call is still spasmodic.

While one house will have a good business for a week or so, another will not be so fortunate, and consequently the reports made by these two houses on general conditions will be at variance. Taken as a whole, the volume is increasing gradually. This gradual increase is expected to continue from now on. A looked for betterment in the direct advertising fields is said to have started and this activity will bring the paper demand a little higher.

Agitation Over Long List

There is quite a little agitation being worked up among the printing trades here concerning the long price list. This matter has been a rather quiet affair in Chicago compared to the activities in that connection in some of the other cities, and it is felt that this quiet situation was brought about by the stated willingness of the paper men here to co-operate with the printers and endeavor to see that they were accorded with such treatment as was due them as paper distributors of importance.

At recent meetings of the printing trades branches, the subject was brought up for discussion. At one of these meetings recently, a leading paper jobber of the city was asked to speak to printers and tell them the stand of the paper jobbers in Chicago. This paper jobber kept entirely away from mentioning the long price list and told the printers of an agreement which had been drawn up to protect the printer paper distributors. He said that the jobbers recognized the importance of co-operating with the printers for they represented one of the most important outlets for the paper jobber's product. In this respect, some years ago, an agreement was entered into, whereby the local jobbers would offer protection to the printers by refusing to sell printing papers in less than mill orders. But the printers protested that this agreement had not been lived up to, and they could cite many instances of where paper houses have stepped into the printers market and sold paper to houses which under the referred to agreement were not logical direct paper customers.

Several instances of such violation of agreement were told of by the printers, and the jobber finally countered by saying that he would like the printers who had found such violations, and who found them in the future, to report them, and they would be investigated.

The paper jobbers of Chicago handling printing papers, have taken the stand that they should protect their trade. Unless mill orders for this class of paper are placed, the channel through which it should be distributed is the printer. In an endeavor to show the printers that they were willing and anxious to co-operate, the mentioned agreement was drawn up, and it was signed by almost every jobber handling printing papers in the city. The exceptions proved to be mostly houses which catered only to printing establishments and it had always been its policy to distribute this class of paper through printers to the general consuming public.

However, recently, the printing trades of this city have shown a stronger desire to have the long price list made an actuality in this city. Speeches have been made in its favor at several recent printer gatherings, and only last week, one of the largest bodies of local printers put itself on record as in favor of the long price list and appointed a committee to represent this group of Chicago members of the printing trades in support of the long price list.

What will be the outcome of these recent appeals for the long list in Chicago can not be guessed at. The paper jobbers feel that they are doing all in their power when they promise to protect the printers as customers to the extent of not selling paper to their prospective trade for printing purposes. One remedy which has been offered is that printers refuse to print paper furnished by their customers unless it is in mill order lots, but with a certain class of this trade this suggestion has not worked, for they will not turn down a possible printing job.

The local paper jobbers hope that the printers and themselves will be able to come to some conclusion and agreeable understanding in the very near future which will settle the differences on the question and bring the existing feeling in the matter to a close.

General News

The directorate of the Brown Paper Goods Company, of 900 West Lake street, Chicago, has been increased from four to five. The name of the new director of this firm was not disclosed.

Early this month the Zacharia Paper Box Company, 900 West Lake street decreased its stock from $100,000 to $50,000 and at the same time changed the name of the firm to the Evans Paper Box Company under which name it will continue to operate as previously.

Carew Superintendent Resigns

SOUTH HADLEY FALLS, Mass., March 6, 1922.—Mr. Geraghty has resigned as superintendent of the Carew Manufacturing Company to enter the mill supply business. Before leaving the men in the mill remembered him handsomely. Henry Drain, machine tender at the mill, made the speech Saturday noon presenting Mr. Geraghty in behalf of the employes with a beautiful walrus traveling bag and toilette set to match, also an English cravenette raincoat, and Mrs. Geraghty a very nice electric coffee urn. It is not necessary to state that the men of this mill held Mr. Geraghty in very high esteem.

Mr. Geraghty has been associated with the paper industry ever since his graduation from Dartmouth College, eighteen years ago.

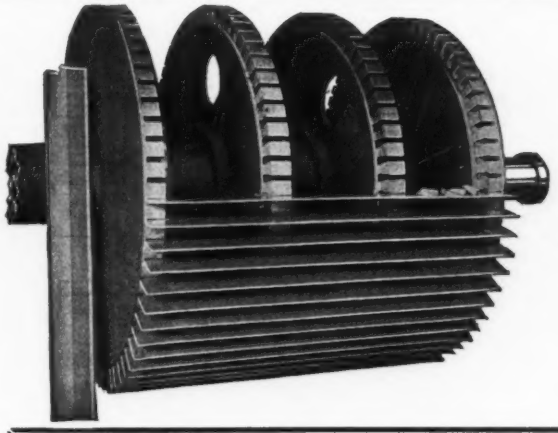
Contribution Made by the Bird Machine Co.

Among the contributors to the vocational education fund of the pulp and paper industry, published in the PAPER TRADE JOURNAL of February 23, appeared the name of Bird & Sons, East Walpole, Mass. This was a mistake on the part of the compilers of the list and the credit for the contribution referred to belongs to the Bird Machine Company, South Walpole, Mass., which was among the earliest to respond to the appeal for the support of the vocational education work in the spring of 1919.

Pride Paper Co. Installing Machinery

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., March 6, 1922.—The new plant of the Pride Pulp and Paper Company at Tomahawk, is temporarily closed down while new machinery is being installed in the finishing departments. The plant began operations with one machine some time ago but all the finishing material was not installed because of the difficulty of obtaining it. The new machines will be ready for use in about a month, it was reported from Tomahawk.



Dilts Machine Works, Inc.

Fulton, N. Y., U. S. A.

Manufacturers of

BEATING and WASHING ENGINES

FLY BARS—BED PLATES—

MACHINE KNIVES

Our new KEYED TYPE BANDLESS ROLL is the final result of Many Years of Experience.

May we not tell you about its many advantages?

The Lockport Felt

Use a Lockport ***Cylinder Bottom*** and ***Top*** combination for ***Board*** and watch your ***Felt Cost***

ASK THE MEN WHO RUN THEM

YOURS FOR SERVICE

LOCKPORT FELT COMPANY

NEWFANE, N. Y.

The John W. Higman Co.

29 Broadway New York City

QUALITY

CLAYS

FOR ALL PURPOSES

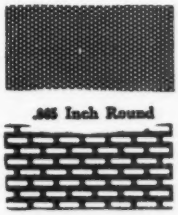
ENGLISH AND AMERICAN

Perforated Metal Screens

For Pulp and Paper Mills

STEEL, COPPER, BRASS, BRONZE and other Alloys

punched for Centrifugal and Rotary Screens, Pulp Washers, Drainer Bottoms, Filter Plates, etc.



.065 Inch Round

½ x ⅝ Inch Slots

CHARLES MUNDT & SONS

53-65 FAIRMONT AVE. JERSEY CITY, N. J.

PAPER MAKERS CHEMICAL CO.

WESTERN PAPER MAKERS CHEMICAL CO.

EASTON HOLYOKE KALAMAZOO

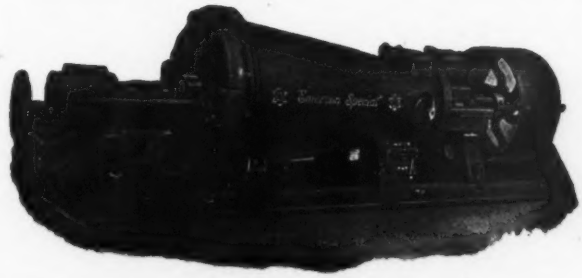
JACKSONVILLE PENSACOLA ST. AUSTELL

CLAYS ROSIN SIZE

SATIN WHITE FOAM KILLER

FELT SOAP and OTHER SPECIALTIES

EMERSON MANUFACTURING CO. LAWRENCE MASS.



See the Second-Hand Machinery ads and note the ABSENCE of

EMERSON BEATING ENGINES

They seldom wear out and are never thrown out. PERFECT CIRCULATION. NO "PADDLING."

The "EMERSON" JORDAN

does its work with half the power required by others of no greater capacity.

WRITE FOR DETAILS

Market for Paper in Japan

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 7, 1922.—American Consul Schnare, at Kobe, has the following to say in a report to the Department of Commerce regarding the present market for paper in Japan:

"There is a large market for certain grades of paper in Japan, in spite of the fact that the Japanese foreign-style paper industry has assumed considerable proportions. As a general rule, it may be said that the Japanese paper mills, using native, Canadian, Swedish, and American pulp, are able to produce sufficient paper of the cheaper grades to meet the domestic demand, but that it is still necessary to import paper of the better grades. The extent and characteristics of this trade may be seen from the following table of Japanese paper imports in 1920:

PAPER IMPORTED INTO JAPAN IN 1920

Kinds	Pounds	Value
Paper, Printing—		
Weighing not more than 58 grams per square meter	3,453,465	$376,268
Other	17,793,425	2,528,898
Writing	2,430,075	497,638
Drawing	304,706	96,853
Packing	22,288,296	2,667,379
Match	237,316	25,747
Fancy	902,793	179,319
Imitation Japanese and tissue paper	4,392,892	627,680
Imitation parchment, paraffin, and wax paper	3,538,373	717,389
All other papers	.....	307,576
Pasteboard and cardboard	5,738,360	679,087
Total	.....	$8,704,134

"The present economic depression in Japan has had a serious effect on this trade, as in the first 10 months of 1921 the imports amounted to only a little more than half those of the corresponding period of 1920. It can not be expected that the trade for some years to come will be as large as in 1920.

"In 1920 the United States supplied the greater part of the paper imported by Japan (50 per cent), with Great Britain next (20 per cent). As Tokyo is the center of the publishing industry of Japan, the greater part of the paper was entered at Yokohama, only 37 per cent being imported at Kobe and Osaka.

"Paper is usually imported by the large trading firms, who purchase either through their branch offices in the United States or from the paper exporting concerns on the Pacific Coast. So far as is known, there are no American paper manufacturers that have agents in Japan at the present time, but there is little doubt that it would be an excellent plan to establish such an agency, if a suitable representative could be found."

Bids for Government Paper

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 8, 1922.—The Purchasing Officer of the Government Printing Office has received the following bids:

3,000 sheets of manila tag boad, 22½ x 28½—120: George W. Millar & Co., Inc., $.107 per pound; Maurice O'Meara Company, $.0925; Wilkinson Bros. & Co., $.102; Dobler & Mudge, $.0925; Old Dominion Paper Company, $.097 and $.102; D. L. Ward Company, $.10; Mathers-Lamm Paper Company, $.105.

Dobler and Mudge have been awarded the contract by the Purchasing Officer of the Government Printing Office for furnishing 3,700 pounds of 24x38—74 rope manila paper at $.11 per pound. The Old Dominion Paper Company will furnish 1,810 pounds of 22¼x28½—181 salmon index bristol at $.1974 per pound. Bids for these items were opened on February 24.

The Purchasing Officer of the Printing Office has received the following bids for 5,000 pounds of 26x38—No. 50 chip board: The C. L. LaBoiteaux Company, at $36.70 per ton; The Whitaker Paper Company, at $36.83; Dobler & Mudge, $37; George W. Millar & Co., Inc., $39.50; Philip Rudolph & Sons, Inc., $34.30; Mathers-Lamm Paper Company, $37.20; R. P. Andrews Company, $37.90; Reese & Reese, $37.16; B. F. Bond Paper Company, $39; Great Notch Paper Company, $39; United Paperboard Company, $37.50.

The Bureau of Supplies and Accounts, Navy Department, will open bids on March 10 for 30,000 pounds (18,000 sheets) of various sizes, No. 2 quality Binders Board; 36,000 pounds of high finish sulphite Manila paper in 18-inch rolls; 6,700 pounds of 38 x 38—134 Rope Manila paper, and 13,000 pounds of various sizes best quality, Binders Board.

News of the Holyoke Trade

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 6, 1922.—The Dickinson division mill of the American Writing Paper Company reopened today. The three machines of the mill were in operation.

Directors reelected at the annual meeting of the stockholders of the American Writing Paper Company are: George A. Galliver, president of the company; John Branch, Richmond, Va.; Otto Marx, New York City; Parmalee W. Herrick, Cleveland, Ohio; C. J. Schmitlapp, New York City.

Educational motion pictures of paper mill proceedure taken in the mills of the American Writing Paper Company will be shown in conjunction with the exhibit of a paper mill in operation at the Rochester Paper Making Exposition which will be held at the Powers' hotel in Rochester, N. Y., on March 9, 10 and 11. Dr. R. E. Rindfusz, secretary of the American Writing Paper Company, will speak during the presentation of the pictures.

To Reduce Limit on Printing Paper April 23

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 8, 1922.—On April 23 of this year the duty free limit on printing paper will go back to paper sold at not over 5 cents per pound, according to law.

It will probably be remembered that on April 23, 1920, Congress passed a bill which raised the limit to 8 cents per pound under which printing paper could be imported into the United States duty free. The law provided that it would be operative for a period of two years which expires on April 23 of this year. Up to this time no extension has been provided for by Congress.

Confer on Canadian Reciprocal Agreement

[FROM OUR REGULAR CORRESPONDENT.]

WASHINGTON, D. C., March 8, 1922.—Establishment of a reciprocal trade agreement between the United States and Canada was considered at a conference last Wednesday between the President and William S. Fielding, Canadian Minister of Finance. It is assumed that in approaching the President Mr. Fielding informed him of the extent to which Canada would be willing to go towards arriving at any such agreement. Both the President and Mr. Fielding refused to comment upon the matter.

Union Selling Co. Takes Over Herrlinger & Co.

[FROM OUR REGULAR CORRESPONDENT.]

CINCINNATI, Ohio, March 8, 1922—The Union Selling Company, Inc., has sent out a notice that it has taken over the entire assets of Herrlinger & Co. so that in the future its business will be conducted as a corporation. The business will be conducted by the same people and with the same policy as heretofore. The notice is signed by Edward F. Herrlinger, William E. Herrlinger, E. J. Leahy, H. L. Slate, H. E. Tieghman, J. W. Johnson and L. C. Doescher.

Lancaster Board & Paper Co. Sold

[FROM OUR REGULAR CORRESPONDENT.]

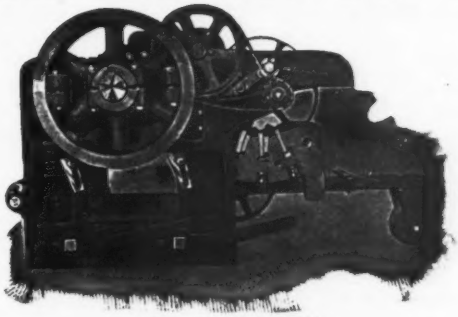
LANCASTER, Ohio, March 6, 1922—The mill of the Lancaster Board and Paper Co. has been sold to the U. S. Gypsum Company.

Don't Use Your Beaters For Rag Cutters

Put in a

GIANT

and cut your stock thoroughly and evenly



NO. 11 TRIPLEX

Capacity 2 Tons per hour

Weight 8500 lbs.

For Roofing and Felt Stock

MACHINE KNIVES — TAYLOR, STILES & Co. RIEGELSVILLE, N. J. U. S. A. — STOCK CUTTERS

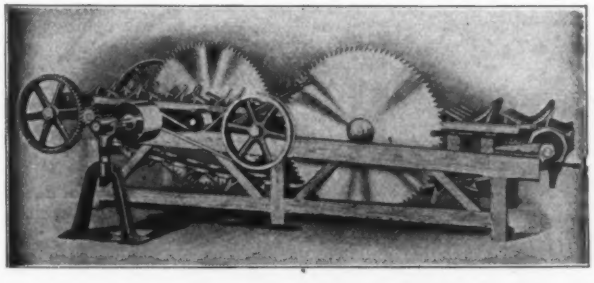
Canadian Manufacturers Under Patents: WATEROUS ENGINE WORKS CO., Brantford, Ont., Can.
I. MARX & CO., London, E. C., sole agents for the United Kingdom

Increased Capacity Lower Cost Per Cord

THE

Ryther Slasher

is the most efficient and the lowest cost method of reducing long logs to uniform short lengths suitable for further manufacture into pulp and paper.



Built in all sizes to handle logs from 4 feet to 32 feet in length. Can be arranged to trim either one or both ends of logs if desired.

RYTHER & PRINGLE CO.,
Carthage, N. Y.

CONDITIONS IN THE FINE PAPER MARKET

Ross P. Andrews, president and general manager of the R. P. Andrews Paper Company, Washington, D. C., made the following address on the "Paper Market" at the annual convention of the Wholesale Stationers' Association in New York, Friday, February 24:

"Your program will tell you that I am to address you on the 'Paper Market.' Once I was wrong in prognosticating for the future. I hope and I believe that you have forgiven me for that occasion, but if I was wrong, and I was in that event, practically the entire paper trade was with me, for no man, either manufacturer or dealer, would have believed that the slump which took place in 1921 in the paper market could happen.

"We know, all of us, what the present condition of the market is. What we would like to know is what the future holds. Speaking of the present, I am indebted to George Galliver, President of the American Writing Paper Company, for some figures and charts which show the volume of manufacture in the paper industry for 1919, 1920, and 1921. Starting at 100 per cent in 1919, the production of fine paper reached the peak toward the latter part of that year, almost 130 per cent. From that point it began to recede, and with the exception of an upward movement in the early part of 1920, it continued downward to less than 50 per cent in the early part of 1921. From that point it recovered, but very slowly.

On a 75 Per Cent. Basis

"At the present time, orders, production, and shipments of fine papers are on a 75 per cent basis. This is taking the industry as a whole. I know of quite a few mills which are now and have been for the last two months running 100 per cent.

"As to the present and future price of fine papers I can only point out to you that, taking the year 1913 as a basis, costs to the manufacturer and the selling price, the present selling price is in the neighborhood of five per cent below the paper production price at this time. This, of course, means a loss to most mills, certainly to those who are on part time operations, because part time operations will always more than offset any increased efficiency which may have been brought about.

"On the commodity exchange basis fine papers are very near their 1913 value. I mean that you can exchange a ton of paper for practically the same proportionate amount of other commodities that you could before the war, and this shows that paper values are in line with the average of other values, which is significant to say the least, and should show you that liquidation in the paper market is about completed. There may be lower prices, or I might say a leveling of prices in some lines, but I believe as a general proposition covering all grades of fine or writing papers that we have reached practically our lowest level.

To See Gradual Improvement in Business

"We cannot expect the paper business to improve unless the general business improves, because the paper business depends upon activities of general business, and cannot go ahead of it. I believe that we will see a gradual improvement in general business conditions. It will not be a boom or anything approaching it, but liquidation, having as I believe been practically completed, we can look forward to a healthy gradual increase in our business.

"The stocks in the hands of the manufacturers as well as the dealers of paper in the United States have been reduced about one-third from what they were a year ago, and I believe that they are now as low as the lowest average carried in the busy part of 1920.

"I feel that the present is a time when we should all endeavor to not only safeguard our present business, but we should do all we can to create business. It seems to me that we are particularly fortunate in having the assistance in the creation of business for the retail stationer, which means as well the wholesale stationer, one of the leading manufacturers of writing paper in the United States as well as one of the largest converters. I refer to the Hammermill Paper Company, and White & Wyckoff Manufacturing Company. These gentlemen are about to put on a campaign jointly that will mean a great deal to every retailer and every wholesaler of stationery in the United States, because they will in my opinion, create business that has never existed before. The opening gun of this campaign will appear in the *Saturday Evening Post* of March 4, which means it will reach at least two million people on that date. Looking at this question from a broad point of view I am convinced that this campaign will help every retail and wholesale dealer in the United States whether they are distributors of the Hammermill converted lines or not, because such a campaign cannot help but educate the public to the use of more paper, both in a social and business way. So I trust that the members of our association whether they are distributors or not will lend a helping hand to the Hammermill-White & Wyckoff campaign, because I am convinced that every booster will mean added business to the booster.

"There are two factors which might work to a further reduction in the price of paper, and this would apply to all other commodities. They are freight rates and labor. I doubt whether we are going to see labor any lower than it is at the present time for some years to come. I believe we may expect some lowering of freight rates.

The High Price of Printing

"There is a very important factor that has tended to retard the return to normal business in the printing industry which we in the paper business are very much interested in to say the least, and that is the question of the continued high price of printing. Whith a view of determining the conditions which exist in the printing industry, which as I have stated have such a vital effect on the paper industry, I have recently interviewed several potential printing firms, and I believe I am able to state that the large as well as the small employing printers feel that lower prices for printing would certainly increase the volume of their business, and is really now and has been expected by the public. These firms with whom I have talked feel that a great deal of business has been lost to the paper and printing industries, and lost forever because of the prevailing high prices, but they confessed that they themselves are powerless. The demands of the print shop employees have been entirely in the direction of increased wages and shorter hours. In some cities these demands were refused and strikes ensued with their consequences of curtailing to a more or less degree all printing. In other cities the demands were conceded which brought about the same result. Let us hope that the ones responsible will be brought to see the error of their ways, for we must all know that to place our business and our country on a firm basis that we must all work more and play less. We must give an honest day's work for an honest day's pay.

"Why not adopt for a slogan the words of that popular song of a few years ago, 'I work eight hours, I sleep eight hours, that leaves eight hours for love.'"

Beaver Board Companies Extend Time

Reorganization committee of the Beaver Board companies have again extended the time for deposit of notes, stock and creditors' assets under the plan providing for formation of new holding and asset companies. The plan makes provision for $4,000,000 eleven-year 8 per cent collateral trust gold notes of the new holding company to be issued in exchange for the twelve-year unsecured notes now outstanding.

Howard Bond

Howard Ledger

"The Paper of Many Uses"

Manufactured by

THE HOWARD PAPER COMPANY, Urbana, Ohio

FORGE LAP-WELDED

SOFT STEEL

DIGESTERS

ALL SEAMS LAP-WELDED

VERTICAL SEAMS HEATED WITH FURNACES AND WELDED WITH HYDRAULIC POWER

CIRCUMFERENTIAL SEAMS HEATED WITH FURNACES AND HAMMER WELDED

AMERICAN WELDING COMPANY

CARBONDALE, PA.

Felt Test—Lowest Cost per Ton

If you judge felt values, not by what you put into the equipment, but what you get out of it—then you will specify ORR 3 stripe Endless Felts, for ORR felts will produce the lowest cost per ton. They "stand up" under severe usage. Orr durability is acknowledged everywhere. Their strength and long life are as dependable as their reliability and quality.

In the 32 grades of Felts and Jackets we can match your most exacting demands. Tell us the kind of paper you desire to make, and we will send you samples of felts that will economically serve you and help you to produce paper at lowest cost per ton.

THE ORR FELT & BLANKET COMPANY, Piqua, Ohio

WILLIAM A. HARDY & SONS COMPANY, Fitchburg, Mass., U.S.A.

NEW PROCESS FOR PULPING SOUTHERN YELLOW PINE

The announcement is made that J. Flint Carter, chemical engineer, with laboratories at Elizabeth, La., has, after 18 years of contact with the problem, evolved what is said to be a successful process, by which the knots, downwood and stumps of the yellow pine of the South are reduced to a high grade pulp, notwithstanding the excessive amounts of rosin and pitch which are contained therein. Mr. Carter has, during this long period of years, operated plants on the destructive process, on the steam process, and a half-dozen different solvent processes, all for the extraction of turpentine and rosin from the stumps and knots which abound in the South where the yellow pine has been cut out. But there always was present the thought that the utmost had not been done with the wood, and, having been a straw pulper in younger days, and trained in the old soda process of treating wood, he began to apply himself to making pulp from this resinous wood.

Studied Structure of the Tree

Mr. Carter states that, before he commenced work on the present process, he gave intensive study, by means of the microscope and large photo-micrographs which he made, to the actual structure of the tree at every point, in the main roots, the root-knots, the trunk, the tops, and knots above the ground. And, from the knowledge gained in this study, he based the first part of the process.

It is said that any knot can be as well pulped as any other part of the wood, that the percentage of shieves is almost nil, that a really standardized chip is made to start with.

When he had worked out his process in the laboratory and in small digesters holding 100 pounds, Mr. Carter sought a large land-owner, and found the Industrial Lumber Company.

What the Company Claims

The prospectus of this company in part says:

"For 14 months the Industrial Lumber Company, of Elizabeth, La., has been carrying out tests and experiments on the use of stumps, knots, downwood and mill-waste of longleaf yellow pine in the manufacture of paper, after the extraction of the turpentine and rosin. They have spent more than $20,000 in their effort to be certain that the process presented by J. F. Carter was right and that a process which would work up such waste wood had finally been found.

"Until this time it had been stated quite conclusively that paper could not be made from knots of any kind, more especially knots of yellow pine, nor from the very resinous stumps of the yellow pine. Extraction processes had been devised by which turpentine and rosin are extracted, but no process by which the residual wood, after extraction, could be made into a merchantable paper.

"In these 14 months of testing (all tests were made on a commercial scale, and not mere laboratory tests) it has been proven that this particular process is an actual success. The Industrial Lumber Company had refused to abide by any small tests, or laboratory work, and caused all pulping and extraction tests to be made in retorts and digesters holding from 12,000 to 15,000 pounds at a charge.

"Thus the arguments and discounts against laboratory work are all removed.

"Those who are best acquainted with pulp-making will appreciate this point: that this process produces what has so much been sought—a standard chip. A standard chip is certain to cause an even cook, and is just as certain of bringing about a standard grade, inasmuch as all cooks will be exactly alike. This process of standardization of the chip is, so far as plant-practice tests are concerned, the first one to be introduced to the pulp maker. And, the most serious attention might be called to the fact that there is no selection of wood, no separation of one piece as against another—the entire acreage of stumps, knots and growing pine is taken as it comes, one piece being given no more attention than another, all treated the same way, and, when the process is carried out in its entirety, it has always been found that the screenings amount to less than two-tenths of one per cent. Further, though stumps and knots may be badly charred, no charcoal nor carbon is found in the pulp.

To Make Kraft Wrapper

"The grade of paper to be made is Kraft Wrapper. The statement can be made that the pulp will produce No. 1 Kraft. In the tests of hundreds of sheets, made from several different cooks, it is found that the paper ranks with the Kraft wrappers found on the market. Every possible test has been made to ascertain the true value of the pulp, inasmuch as the statement had so often been made that a high grade paper could not be made after products had been extracted from the wood. This has been proven to be untrue and without foundation. There are processes of extraction wherein the residual wood cannot be used, save in some cases for an extremely dark-colored and weak fiber, but in every single case or test or experiment under this process the paper was up to the standards required. There were no char-spots, no large shieves when the entire process was carried through—a perfectly marketable pulp in every way.

"Further progress has been made: by bleaching this pulp and mixing with bleached soda pulp, there is produced a most excellent book paper which possesses much more strength than ordinary book papers; as also can be made bonds, ledgers, tissues, and vegetable parchments. The pulp absorbs color readily when colored papers are wanted.

"All tests were carried out on commercial scale, using tons instead of pounds, so that no discounts may be thought of as against 'laboratory tests.'"

Improving Kennebec Pulp Co.

[FROM OUR REGULAR CORRESPONDENT.]

BANGOR, Me., March 7, 1922.—The Kennebec Pulp Co. at Skowhegan has been undergoing complete changes for the past few weeks, as the plant will be thoroughly renovated and the old means of furnishing power from water will give way to the more modern method of electric power. One large motor of 750 H. P. will be installed and four smaller motors, which will give an aggregate of 1,000 H. P. and will greatly increase the production of the plant. Superintendent Young expects to start full time operations as soon as the work is completed, which will be about April 1.

This mill, which adjoins the North Channel dam, has been closed since last July, but will in a short time be furnishing the Keyes Fibre Company of Waterville between 4,000 and 5,000 tons of pulp yearly and will employ about 30 hands, running night and day.

Alterations commenced on this plant last December, when 16 men were put onto the task by the new management and work rushed for an early completion. The building, which is a two-story wooden structure, 80 feet square, was immediately put into first class shape before the machinery could be changed.

One of the first changes was to remove one of the grinders, as only two could be run from the 750 H. P. motor, but it was estimated that two under electric power could accomplish as much as three under the former means of water power. In case conditions warrant, an additional motor can be installed, which will allow for two more grinders.

The New 1922 Edition

of

Lockwood's Directory

of the

Paper and Allied Trades

An encyclopedia of the Paper and Pulp Industry and Allied lines, thoroughly revised and up-to-date. Its contents include complete lists of

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Lockwood Trade Journal Co., Inc.
10 East 39th St., New York

New York Market Review

OFFICE OF THE PAPER TRADE JOURNAL.
WEDNESDAY, MARCH 8, 1921.

The New York paper market is slowly but surely gaining in strength and activity. Progress is fairly encouraging although here and there a pessimistic note is sounded and even the least conservative optimist in the trade does not entertain excessive expectations. It is commonly conceded to be a time for work and not play—this period when so much hangs in the balance. It is time for sowing seeds and those who are farsighted are very busy at present in spite of all discouragements, for they expect to reap later on where they have sown during this transition period between depression and normalcy. The first year of President Harding's administration which ended Saturday, March 4, was a most trying one for business in spite of the very effective work done by him to relieve the situation. Without question the President's second year will reflect in a reward of general prosperity all the efforts that he has expended to improve the economic status of the country. General business is bound to react favorably when a capable business man is at the head of the Government. Recent stabilization in the markets for agricultural products provide a strong foundation for business recovery. The importance of the farmer's buying power is not to be overlooked and now that his star is in the ascendent his return to the market for more necessities and luxuries cannot but have a salutary effect upon the general business. In several lines of paper salesmen find business better in the small towns where the purchasing power of the community as a whole is often better than in the cities where large factories, more or less idle, contribute to unemployment and reduce the buying capacity of the populace. The paper industry feels the heavy hand of high freight rates to an extent hardly felt in any other line on account of the large amount of raw material required to produce a given amount of paper. When excessive charges are placed on each and every ingredient used in paper-making the sum total is one to greatly affect the price of the finished product. The railroad situation can only mend slowly at best, but confidence is growing that the improvement will continue throughout the year with no more than temporary reactions backward.

The news print market is firming up and if there were no foreign competition to interfere it is felt that its position would be one of remarkable strength and activity. The demand is increasing slowly and reports from the large mills indicate that their production is being speeded up to keep pace with the market requirements. Advertising is increasing due to heavy competition and while in itself it is not a perfect criterion upon which to judge the demand for news print, it is nevertheless an important factor and one that indicates an improvement in the market. The production of all grades of news print for January, 1922, was 105,808 tons against 123,830 tons for January, 1921, according to the statistics of the Federal Trade Commission.

The book paper market is slow and sluggish although the demand is better than that of the same period last year. Business is to be found if looked for diligently and a tendency to shade prices is noticeable where any pressure is brought to bear on the market. Dealers do not anticipate any very wide range of fluctuation in the price list throughout the next months with the exception of that occasioned by the seasons. Production of book paper for January, 1922, was 73,466 tons against 64,382 tons for January, 1921.

The fine paper market is slightly more active with the cheaper grades of sulphite bond still in best demand. The mills are operating a little better and confidence seems to be partially restored to the trade inasmuch as stocks of paper-making materials are now being bought in larger quantities than formerly. Production of fine paper for January, 1922, was 27,405 tons against 22,756 tons in January, 1921.

Little betterment is to be found in the tissue line which is still very quiet. Production lagging and there is scarcely any demand of noticeable size.

The demand for kraft paper is good and production remains active indicating a strong market. Some of the larger kraft mills have their product sold out for some weeks in advance. The general tendency in prices of most paper is to decrease but thus far the kraft market has not been influenced by the general trend, and quotations remain at a constant level. As in other lines kraft manufacturers are endeavoring to make a small profit on a large scale production. So far in the struggle to normalcy only the kraft interests have been enabled to operate their factories on anything like a scale that would insure a profit in spite of the low price demanded by buyers, and in this respect this department is far ahead of all others. Production of wrapping paper in January, 1922, was 65,791 tons against 44,620 in 1921.

The board market is quiet and shows little change for better or worse in spite of the fact that underlying conditions are vastly better than formerly. Paperboard production for January, 1922, was 145,198 tons against 105,806 tons in 1921. Boxboard production for January, 1922, was 105,416 tons against 74,870 tons for January, 1921.

Mechanical Pulp

The mechanical pulp market remains quiet. Production should not be harassed by low water in the next few months and provided that the demand expands as it should under the influence of improved basic conditions, and as it is expected that it will improve on account of the low stocks of pulp held at the mills, the market should soon take on a more active appearance. Importation of chemical pulp is at a minimum and it is thought that even a flurry of buying will find the supply inadequate. Prices are a bit lower if any change at all may be noted.

Chemical Pulp

Trading in the chemical pulp market is still of the hand to mouth variety. Liquidation is well on toward completion and buying on a normal basis must commence before long. Foreign pulp is an important factor in the domestic market but must be sold at close to one half a cent per pound less than the domestic to warrant any attention from buyers. It is feared that a return to even a normal traffic in chemical pulp will find the railroads in no position to care for the added burden and that still higher rates will have to be enforced. Prices are commonly shaded a little when buyers bring pressure to bear.

Old Rope and Bagging

Only a slight improvement is manifest in the old rope and bagging market. Small stocks of these commodities are quickly consumed and a steady although light buying is generally indulged in. Inquiries are on the increase and the trade in general optimistic for the future.

Waste Paper

The waste paper business is showing improvement and the tone of the market is firmer than for some time. The mills are taking somewhat larger lots than formerly although the demand is still restricted. The cheaper grades of waste paper are more sought after than those higher priced as a rule. Collections are improving and there appears to be no danger of any shortage unless a very sudden and panicky demand should arise. Over-issue news is not plentiful since large lots are being exported to Asia. Dealers on the whole are much encouraged by the situation.

Rags

The rag market is quiet. Inquiries are on the increase and some price shading is indulged in in order to close most of the deals. The mills are showing more interest while prices tend to fluctuate.

Market Quotations

Paper Company Securities

New York Stock Exchange closing quotations March 7, 1922:

STOCKS	BID.	ASKED.
American Writing Paper Company, pref.	25½	26
International Paper Company, com.	46⅜	47⅞
International Paper Company, pref., stamped	62	63
Union Bag & Paper Corporation	63¾	65

Because of the unusual conditions prevailing in the various markets quotations are more or less nominal.

Paper

F. o. b. Mill.

Ledgers	10.50	@	30.00
Bonds	9.00	@	55.00
Writings—			
Extra Superfine	14	@	25
Superfine	13	@	20
Tub Sized	10	@	16
Engine Sized	9.00	@	15.00
News—f. o. b. Mill—			
Rolls, contract	3.50	@	—
Rolls, transit	3.75	@	4.00
Sheets	4.00	@	
Side Runs	3.25	@	3.50
Book, Cased—f. o. b. N. Y.—			
S. & S. C.	6.70	@	7.50
M. F.	6.45	@	7.25
Coated and Enamel	8.00	@	10.00
Lithograph	8.00	@	10.00
Tissues—f. o. b. N. Y.—			
White, No. 1	.75	@	.80
Colored	1.00	@	2.00
Anti-Tarnish	.75	@	.80
Silver Tissue	1.50	@	2.70
Manila	.75	@	.80
Kraft—f. o. b. Mill—			
No. 1 Domestic	7.00	@	7.50
No. 2 Domestic	5.75	@	6.50
Imported	5.75	@	6.00
Screenings	2.50	@	3.50
Manila—			
No. 1 Jute	8.50	@	9.00
No. 2 Jute	7.75	@	8.50
No. 1 Wood	5.00	@	6.00
No. 2 Wood	4.25	@	4.75
Butchers	4.25	@	4.75
Fiber Papers—			
No. 1 Fiber	6.00	@	6.25
No. 2 Fiber	5.25	@	5.50
Common Bogus	1.75	@	2.25
Card Middies	4.00	@	5.00
Boards—per ton—			
News	40.00	@	45.00
Straw	40.00	@	45.00
Chip	37.50	@	40.00
Binders' Board	60.00	@	70.00
Sgl. Mla. Lt.Chip	60.00	@	65.00
Wood Pulp	75.00	@	90.00
Container	65.00	@	70.00
Wax Paper—			
Self Sealing White 28 and 30 lb. basis	11.00	@	12.75
Waxed Tissue	1.40	@	1.50
Glassine—			
Bleached, basis 25 lbs.	12.75	@	13.25
Bleached, basis 20 lbs.	13.75	@	15.25

Mechanical Pulp

(Ex-Dock)

No. 1 Imported	34.00	@	36.00

F. o. b. Pulp Mills.)

No. 1 Domestic	29.00	@	31.00

Chemical Pulp

(Ex-Dock, Atlantic Ports.)

Sulphite (Imported)—			
Bleached	4.25	@	5.00
Easy Bleaching	3.00	@	3.25
No. 1 Strong unbleached	2.75	@	3.00
No. 2 Strong unbleached	2.50	@	2.75
No. 1 Kraft	2.75	@	3.00
Sulphate—			
Bleached	4.00	@	4.50

(F. o. b. Pulp Mill.)

Sulphite (Domestic)—			
Bleached	4.25	@	4.75
Strong unbl'chd	2.50	@	3.00
Easy Bleaching Sulphite	2.50	@	3.50
News Sulphite	2.25	@	3.00
Mitscherlich	3.25	@	3.75
Kraft (Domestic)	2.50	@	3.00
Soda bleached	3.75	@	4.00

Domestic Rags

New Prices to Mill, f. o. b. N. Y.

Shirt Cuttings—			
New White, No.1	9.75	@	10.00
New White, No. 2	6.00	@	6.50
Silesias, No. 1	6.00	@	6.50
New Unbleached	8.75	@	9.50
Washables	3.25	@	3.75
Fancy	4.50	@	5.00
Cottons—according to Grades—			
Blue Overall	5.75	@	6.00
New Blue	4.00	@	4.50
New Black Soft	3.25	@	3.50
New Light Seconds	2.75	@	3.00
O. D. Khaki Cuttings	3.25	@	3.50
Corduroy	2.25	@	2.40
New Canvas	6.00	@	6.50
New Black Mixed	2.75	@	3.25
Old White, No. 1—			
Repacked	5.75	@	6.25
Miscellaneous	4.50	@	4.75
White No. 2—			
Repacked	3.00	@	3.25
Miscellaneous	2.25	@	2.50
St. Soiled White	1.50	@	1.65
Thirds and Blues—			
Repacked	1.50	@	1.75
Miscellaneous	1.10	@	1.25
Black stockings	2.15	@	2.30
Cloth Strippings	1.05	@	1.15
No. 1	1.10	@	1.15
No. 2	.95	@	1.05
No. 3	.70	@	.80
No. 4	.70	@	.80
No. 5A	.90	@	1.00

Foreign Rags

New Light Silesias	6.00	nominal
Light Flannelettes	6.75	nominal
Unbl'chd Cottons	7.50	nominal
New White Cuttings	9.50	nominal
New Light Oxfords	6.00	nominal
New Light Prints	4.50	nominal
New Mixed Cuttings		nominal
New Dark Cuttings	1.90	@ 2.10
No. 1 White Linens	9.50	@11.00
No. 2 White Linens	6.50	nominal
No. 3 White Linens	5.00	nominal
No. 4 White Linens	3.50	nominal
Old Extra Light Prints	2.25	nominal
Ord. Light Prints	1.75	nominal
Med. Light Prints	1.50	nominal
Dutch Blue Cottons	2.10	nominal
German Blue Cottons	1.65	nominal
Ger. Blue Linens	3.50	nominal
Checks and Blues	1.50	nominal
Dark Cottons	1.10	nominal
Shoppery	.95	@ 1.00
French Blues	2.00	nominal

Bagging

Prices to Mill f. o. b. N. Y.

Gunny No. 1—			
Foreign	.75	@	.80
Domestic	.65	@	.75
Wool, Tares, light	1.20	@	1.30
Wool, Tares, heavy	1.25	@	1.40
Bright Bagging	1.20	@	1.30
No. 1 Scrap	.75	@	.85
Sound Bagging	.75	@	.85
Manila Rope—			
Foreign	4.50	@	4.75
Domestic	4.75	@	5.00
New Bu Cut	2.00	@	2.15
Hessian Jute Threads—			
Foreign	4.25	@	4.50
Domestic	4.00	@	4.25
Mixed Strings	.90	@	1.00

Twines

Cotton— (F. o. b. Mill)			
No. 1	32	@	34
No. 2	30	@	32
No. 3	26	@	28
India, No. 6 basis—			
Light	17	@	18
Dark	17	@	18
B. C., 18 Basis	38	@	40
A. B. Italian, 18 Basis	50	@	60
Finished Jute—			
Light, 18 basis	25	@	26
Dark, 18 basis	26	@	28
Jute Wrapping, 3-6 Fly—			
No. 1	22	@	23
No. 2	30	@	31
Tube Rope—			
4-ply and larger	14	@	16
Fine Tube Yarn—			
5-ply and larger	18	@	20
4-ply	19	@	21
3-ply	20	@	22
Unfinished India—			
Basis	15	@	16
Paper Makers Twine Balls	12	@	14
Box Twine, 2-3 ply	16	@	17
Jute Rope	12	@	14
Amer. Hemp, 6	32	@	34
Sisal Hay Rope—			
No. 1 Basis	14	@	16
No. 2 Basis	12	@	14
Sisal Lath Yarn—			
No. 1	13	@	14
No. 2	10	@	12
Manila Rope	17	@	18

Old Waste Papers

(F. o. b. New York)

Shavings—			
Hard White, No. 1	4.00	@	4.25
Hard White, No. 2	3.25	@	3.50
Soft White No. 1	3.20	@	3.30
Flat Stock—			
Stitchless	1.50	@	1.60
Over Issue Mag.	1.50	@	1.60
Solid Flat Book	1.40	@	1.50
Crumpled No. 1	1.05	@	1.15
Solid Book Ledger	2.00	@	2.25
Ledger Stock	1.75	@	1.85
No. 1 White News	1.75	@	1.85
New B. Clips	.47½	@	.52½
Manilas—			
New Env. Cut	2.90	@	3.15
New Cut No. 1	1.80	@	2.00
Extra No. 1, Old	1.60	@	1.70
Print	.90	@	1.00
Container Board	.60	@	.70
Bogus Wrapper	.60	@	.65
Old Krafts, machine compressed Bales	1.85	@	2.00
News—			
Strictly Overissue	.80	@	.85
Strictly Folded	.55	@	.65
No. 1 Mixed Paper	.50	@	.55
Common Paper	.35	@	.40

CHICAGO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

F. o. b. Mill.

All Rag Bond	35	@	40
No. 1 Rag Bond	30	@	35
No. 2 Rag Bond	18	@	20
Water Marked Sulphite	10	@	14
Sulphite Bond	9	@	12
Sulphite Ledger	12	@	13
Superfine Writing	19	@	25
No. 1 Fine Writing	15	@	23
No. 2 Fine Writing	13	@	21
No. 3 Fine Writing	9	@	13
No. 1 M. F. Book	6¼	@	7
No. 1 S. & S. C. Book	6¼	@	7½
Coated Book	8½	@	10¾
Coated Label	8½	@	10½
News—Rolls, mill	3½	@	4½
News—Sheets, mill	3¾	@	4¾
No. 1 Manila	5¾	@	6¼
No. 1 Fiber	5½	@	—
No. 2 Manila	5	@	—
Butchers' Manila	4¼	@	—
No. 1 Kraft	7½	@	—
No. 2 Kraft	6½	@	—
Wood Tag Boards	5	@	—
Screenings	3	@	—
Boards, per ton—			
Plain Chip	35.00	@	40.00
Solid News	40.00	@	45.00
Manila Lined Chip	47.50	@	55.00
Container Line—			
85 Test	60.00	@	65.00
100 Test	65.00	@	70.00
Binders' Board	80.00	@	
Solid Wood Pulp	80.00	@	90.00
Straw Board	35.00	@	40.00
Filled Pulp Board	60.00	@	65.00

Old Papers

Shavings—			
No. 1 Hard White	3.00	@	3.25
No. 1 Soft Shav.	2.50	@	2.75
No. 1 Mixed	1.00	@	1.10
No. 2 Mixed	1.00	@	1.10
White Envel. Cuttings	3.25	@	3.50
Ledgers and Writings	1.50	@	1.75
Solid Books	1.25	@	1.50
No. 1 Books, light	.90	@	1.00
Blanks	1.65	@	1.75
Ex. No. 1 Manila	1.90	@	2.00
Manila Envelope Cuttings	2.00	@	2.25
No. 1 Manilas	1.20	@	1.30
Folders News (over issue)	.85	@	.90
Old Newspaper	.80	@	.85
Mixed Papers	.70	@	.75
Straw Clippings	.70	@	.75
Binders Clippings	.70	@	.75
Kraft	1.75	@	2.00
New Kraft Cuts	2.00	@	2.25
Roofing Stock, f.o.b. Chicago, Net Cash—			
No. 1	27.00	@	—
No. 2	25.00	@	—
No. 3	23.00	@	—
No. 4	23.00	@	—

PHILADELPHIA

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.10	@	.60
Ledgers	.15	@	.40
Writings—			
Superfine	.15	@	.20
Extra fine	.12	@	.22
Fine	.20	@	.30
Fine, No. 2	.20	@	.25
Fine, No. 3	.15	@	.20
Book, M. F.	.06	@	.09
Book, S. S. & C.	.08	@	.15
Book, Coated	.08	@	.15
Coated Lithograph	.10	@	.15
Label	.08	@	.15
News	.05	@	.07
No. 1 Jute Manila	.12	@	.13
Manila Sul., No. 1	.08	@	.08½
Manila No. 2	.07½	@	.08
No. 2 Kraft	—	@	.08½
No. 1 Kraft	—	@	.09½
Common Bogus	.02½	@	.03
Straw Board	35.00	@	45.00
News Board	32.50	@	35.00
Chip Board	27.50	@	32.00
Wood Pulp Board	90.00	@	100.00

(Carload Lots)

Binder Boards—			
Per ton	$65.00	@	75.00
Carload lots	60.00	@	65.00
Tarred Felts—			
Regular	48.00	@	50.00
Slaters	54.00	@	56.00
Best Tarred, 1-ply (per roll)	1.35	@	1.50
Best Tarred, 2-ply (per roll)	1.00	@	1.15
Best Tarred, 3-ply	1.50	@	1.65

Bagging

F. o. b. Phila.

Gunny No. 1—			
Foreign	.90	@	—
Domestic	.85	@	—
Manila Rope	4.00	@	4.50
Sisal Rope	.75	@	.80
Mixed Rope	.75	@	.80
Scrap Burlaps	1.00	@	1.25
Wool Tares, heavy	2.50	@	2.75
Mixed Strings	.75	@	.80
No. 1, New Lt. Burlap	.75	@	.85
New Burlap Cuttings	1.75	@	2.10

Old Papers

F. o. b. Phila.

Shavings—			
No. 1, Hard White	3.50	@	3.75
No. 2, Hard White	3.00	@	3.25
No. 1 Soft White	3.00	@	3.25
No. 2 Soft White	1.75	@	2.00
No. 1 Mixed	1.50	@	1.75
No. 2 Mixed	1.00	@	1.25

(Continued on page 66)

Imports and Exports of Paper and Paper Stock

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING MARCH 4, 1922

SUMMARY

News Print.....159 bls.
Wrapping Paper.....14 bls., 6 cs., 307 rolls.
Packing Paper.....403 bls., 641 rolls
Filter Paper.....3 cs.
Printing Paper.....72 cs.
Tissue Paper.....20 cs.
Surface Coated Paper.....29 cs.
Wall Paper.....4 bls., 5 pgs.
Hangings.....28 bls., 8 cs.
Cigarette Paper.....46 cs.
Miscellaneous Paper..264 cs., 272 bls., 1,678 rolls.

CIGARETTE PAPER.

Liggett & Myers Tobacco Co., Schodack, Havre, 20 cs.
British American Tobacco Co., Celtic, Liverpool, 26 cs.

HANGINGS.

W. H. S. Lloyd & Co., Ninian, London, 28 bls.
W. H. S. Lloyd & Co., by same, 8cs.

WALL PAPER.

A. Murphy & Co., Ninian, London, 1 bl.
R. F. Downing & Co., by same, 5 pgs.
F. J. Emmerich, Zeeland, Antwerp, 3 bls.

SURFACE COATED PAPER.

Defender Photo Supply Co., Zeeland, Antwerp, 29 cs.

TISSUE PAPER.

Meadows Wve & Co., Celtic, Liverpool, 10 cs.
C. H. Wyman Shipping Co., by same, 10 cs.

PRINTING PAPER.

B. F. Drakenfeld & Co., Celtic, Liverpool, 32 cs.
F. B. Vandegrift & Co., Union City, Hamburg, 40 cs.

NEWSPRINT.

Agar Bernsson Corp., Union City, Hamburg, 159 bls.

WRAPPING PAPER.

F. B. Vandegrift & Co., Union City, Hamburg, 14 bls.
F. B. Vandegrift & Co., by same, 6 cs.
F. B. Vandegrift & Co., by same, 307 rolls.

PACKING PAPER.

Japan Paper Co., Union City, Hamburg, 28 bls.
Republic Bag & Paper Co., by same, 617 rolls.
Birn & Wachenheim, Binnendyk, Rotterdam, 24 rolls.
Wilkinson Bros. & Co., Minnekahda, Hamburg, 25 bls.
Wilkinson Bros. & Co., Minnekahda, Hamburg, 330 bls.

FILTER PAPER.

Zinckeisen & Co., Union City, Hamburg, 3 cs.

PAPER.

Bernhard Rieberg & Co., West Inskip, Rotterdam, 19 cs.
A. Murphy & Co., La Lorraine, Havre, 14 bls.
Birn & Wachenheim, Binnendyk, Rotterdam, 194 cs.
J. E. Linde Paper Co., Union City, Hamburg, 130 bls.
J. E. Linde Paper Co., by same, 1,561 rolls.
Chemical Nat'l Bank, by same, 117 rolls.
Chemical Nat'l Bank, by same, 128 bls.
P. C. Zuhlke, Zeeland, Antwerp, 51 cs.

RAGS, BAGGINGS, ETC.

Castle, Gottheil & Overton, Idaho, Antwerp, 205 bls. bagging, 455 bls rags.
M. O'Meara Co., Union City, Hamburg, 55 bls. rags.
Ladenburg, Thalman & Co., by same, 60 bls. paper stock.
Chemical Nat'l Bank, by same, 1,049 bls. rags.
E. J. Keller Co., by same, 417 bls. rags.
Guaranty Trust Co., Zeeland, Antwerp, 215 bls. flax waste.
J. Perlman & Co., Pastores, Havana, 15 bls. rags.
Castle Gottheil & Overton, Pipestone County, Rotterdam, 803 bls. rags.
Mutnick Bros., Celtic, Liverpool, 302 bls. rags.
B. D. Kaplan & Co., by same, 421 bls. rags.
Stone Bros. Sherwin Co., by same, 63 bls. rags.
Brown Bros. & Co., by same, 27 bls. rags.
Albion Trading Co., by same, 207 bls. rags.
American Express Co., by same, 131 bls. rags.
R. F. Downing & Co., Slavic Prince, London, 298 bls. rags.
R. F. Downing & Co., by same, 168 bls. bagging.
E. J. Keller Co., Norfolk Range, Dundee, 35 bls. jute cloth, 7 bls. linen threads.

OLD ROPE.

Brown Bros. & Co., New York City, Bristol, 79 coils.
E. J. Keller Co., Binnendyk, Rotterdam, 64 coils.
R. F. Downing & Co., Zeeland, Antwerp, 29 coils.

CHINA CLAY.

Reichard Coulston, Inc., N. Y City, Bristol, 134 bags.

WOOD PULP.

Castle, Gottheil & Overton, Binnendyk, Rotterdam, 765 bls.
Nat'l Bank of Commerce, Union City, Hamburg, 2,346 bls., 369 tons.
Equitable Trust Co., by same, 1,346 bls., 207 tons.
Brown Bros. & Co., by same, 1,444 bls., 210 tons.
Tidewater Papermills Co., Fieldwood, Liverpool, N. S., 8,308 bls., 830 tons.

PHILADELPHIA IMPORTS

WEEK ENDING MARCH 4, 1922.

Brown Bros. & Co., West Inskip, Antwerp, 262 bls. rags.
Castle, Gottheil & Overton, Beukelsdyk, Amsterdam, 113 bls. rags.
Castle, Gottheil & Overton, Hickman, Hamburg, 2,100 bls. wood pulp.
Castle, Gottheil & Overton, Virginia, Copenhagen, 423 bls. rags.

BOSTON IMPORTS

WEEK ENDING MARCH 4, 1922.

PAPER STOCK.

R. F. Downing & Co., Paradisa, Glasgow, 34 bls. new cuttings.
A. Katzenstein & Co., Sachem, Liverpool, 138 bls. new cuttings.
International Purchasing Co., Winifredian, Liverpool, 107 coils manila rope.
International Purchasing Co., Nitonian, Liverpool,, 83 coils manila rope.
Order, by same, 67 bls. rags.
Order, by same, 50 bls. waste paper.

HIDE CUTTINGS.

E. F. Russ Co., Sachem, Liverpool, 360 bgs.
E. F. Russ Co., Winifredian, Liverpool, 222 bags.
E. F. Russ Co., Nitonian, Liverpool, 294 bgs.

N. A. Pulp Trust Now Terminated

A circular sent out to common shareholders of the North American Pulp and Paper Companies Trust states that the trust has been terminated according to the circular letter of March 25, 1921. Distribution of the Trust Estate applicable to common shares is now being made ratably among the holders of such common shares as provided by the agreement and declaration of trust.

Trust assets available for distribution among common shareholders consisted of 800,000 common shares and 240,000 preferred shares of the Saguenay Pulp and Power Company of the par value of $5 each.

Certificates representing common shares of the Trust must be surrendered to the Guaranty Trust Company, New York, properly endorsed in blank by registered holders and exchanged for proportionate amount of preferred and common Saguenay Company shares. Fractional certificates will be issued for fractions of the preferred and common Saguenay shares resulting from the exchange. Arrangements have been made whereby cash in lieu of such fractional shares may be received at the rate of $3 for either class of stock, such offer terminating on February 28 next.

The circular and plan as set forth is by order of the trustees.

Shevlin-Clarke Will Settle Suit

It is understood that the Shevlin-Clarke Company, of Fort Frances, Ont., has agreed to drop its appeal against the recent judgment of Mr. Justice Logie, who decided that, for the five years, during which the company has cut over timber berths in the Quetico forest reserve of the province, it should pay approximately one million dollars over and above the amount provided in its original agreement with the Crown. Sir Thomas White acted as the intermediary between the company and the Ontario government and it is expected in the compromise which has just been reached, the company will pay over to the province considerably less than this amount.

Shortsville Paper Co. Improvements

SHORTSVILLE, N. Y., March 7, 1922.—According to a statement just issued by the Shortsville Paper Company, the firm is at present devoting a large portion of its plant to the manufacture of paper napkins, which are sold either folded or flat. But one folding machine is now in use, but the company is planning to install three more in the near future, the trade demanding the additional equipment.

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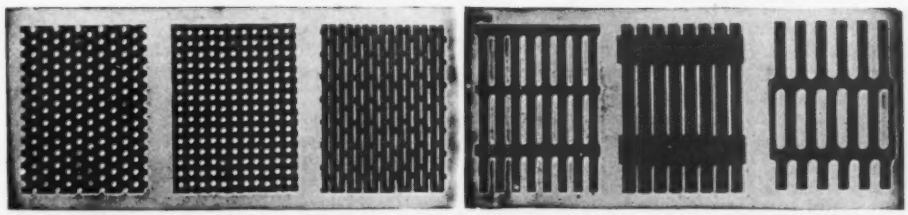

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618 No. Union Ave., Chicago, Ill., U. S. A. New York Office, 114 Liberty St.

Miscellaneous Markets

OFFICE OF THE PAPER TRADE JOURNAL,
WEDNESDAY, March 8, 1922.

ALUM.—A fair volume of trading is being carried on in the alum market although there is plenty of room for improvement in the present hand to mouth buying. Prices are firm with ammonia alum quoted at from 3.65 to 3.75 cents a pound for the lump, 3.75 to 4.00 for the ground, and 4.15 to 5.25 cents for the powdered.

BLEACHING POWDER.—The paper mills are consuming slightly larger quantities of bleach and the market is a bit more active on the whole. Imported bleach sells at 1.80 cents a pound while domestic sells at 1.90 to 2.10 cents.

BLANC FIXE.—Demand for blanc fixe is on the increase although consumers are not taking large lots at yet. Blanc fixe pulp is quoted at from $40 to $50 a ton, and powdered blanc fixe at 3.50 to 3.75 cents a pound.

BRIMSTONE.—The sulphur market is firm and there is no reason to doubt that the department will experience a good year. The supply of domestic sulphur is adequate to all needs and the demand is gradually stiffening. Domestic brimstone is quoted at $18 to $20 a ton, f. o. b., New York, and $16 to $18 a long ton at the mines.

CASEIN.—The casein market is facing a shortage in the supply due to the small volume of arrivals from Argentine during the last year. The demand is larger than formerly and prices bid fair to increase. Casein is quoted at 9.00 to 10.00 cents a pound.

CAUSTIC SODA.—Small lots of caustic to replace depleted stocks continue to move although business is not normal. The contract price is 3.50 cents a pound and this price is slightly shaded in second hands.

CHINA CLAY.—The china clay market is quiet with domestic unwashed selling at $6 to $8 a net ton, washed at $8 to $10, and imported at $13 to $18.

LIQUID CHLORINE.—The liquid chlorine market is moderately active. Prices are firm at 6.00 to 8.00 a pound depending upon quality in 100 pound cylinders, f. o. b. works. Consumers using ton containers and tank cars can obtain prices at lower than those quoted.

ROSIN.—The demand for rosin is still light and prices show very little tendency to rise. Grades E, F, and G, are now quoted at $5.35 per barrel of 280 pounds net.

SALTCAKE.—The saltcake market is improving although a normal demand has not yet been reached. With glass manufacturing improved and a slightly better demand from the paper mills the market is showing a firmer trend. Chromecake sells at $18 a ton and acidwhite at $20.

SATIN WHITE.—Small lots of satin white continue in good demand but trade had not yet been stimulated so that orders for lots of large volume are received to any extent. Price fluctuates at 2.10 cents a pound.

STARCH.—The condition of the starch market is encouraging, since a larger tonnage is required than for some time. Prices are firm with starch quoted at 2.32 cents a pound for bags and 2.60 cents a pound for barrels, carload quantities.

SULPHATE OF ALUMINA.—The movement of all the heavy chemicals is retarded by the high freight schedules and it is felt that any adjustment to improve this situation will at once make itself felt on the market. The commercial grade of sulphate of alumina sells at 1.50 to 1.60 cents a pound and the iron free grade at 2.60 to 2.75 cents a pound.

SODA ASH.—The soda ash market remains quiet with the demand of the hand to mouth variety. Foreign soda ash sells at 1.75 to 1.85 cents a pound and domestic at 1.75 to 1.90.

TALC.—A feeling of general betterment is felt throughout the talc market. The demand is stronger and restored confidence is manifest in fairly large contracts. Talc is now quoted at $10 to $12 a net ton.

Market Quotations

(*Continued from page 63*)

Solid Ledger Stock.	2.00	@	2.25
Writing Paper....	1.80	@	2.00
No. 1 Books, heavy.	1.50	@	1.75
No. 2 Books, light.	1.25	@	1.50
No. 1 New Manila.	2.75	@	3.00
No. 1 Old Manila..	1.50	@	1.75
Container Manila..	1.00	@	1.10
Old Kraft	1.90	@	2.00
Overissue News....	.75	@	.80
Old Newspaper....	.50	@	.60
No. 1 Mixed Paper.	.45	@	.50
Common Paper....	.40	@	.50
Straw Board, Chip.	.40	@	.45
Binders' Bd. Chip.	.40	@	.45

Domestic Rags—New.
Price to Mill, f. o. b. Phila.

Shirt Cuttings—			
New White, No. 1	.09¼	@	.09¾
New White, No. 2	.05	@	.06
Silesias, No. 1..	.05	@	.06
New unbleached..	.08½	@	.09
Washables	.03½	@	.03¾
Fancy	.05	@	.05½
Cottons—according to grades—			
Blue Overall....	.05	@	.05½
New Blue.....	.02½	@	.02¾
New Black Soft.	.03	@	.03¼
New Light Seconds	.02¼	@	.02½
Khaki Cuttings...	.02¾	@	.03¼
Corduroy	.02	@	.02½
New Canvas.....	.07½	@	.08
New Black Mixed	3.00	@	3.25

Old

White, No. 1—			
Repacked	.06	@	.06½
Miscellaneous ...	.04½	@	.04¾
White, No. 2—			
Repacked	.03	@	.03¼
Miscellaneous ...	.02¾	@	.03
Thirds and Blues—			
Repacked	1.85	@	2.00
Miscellaneous ...	1.55	@	1.75
Black stockings...	1.75	@	2.25
Roofing Stock—			
No. 1.....	.90	@	1.00
No. 2.....	.80	@	.90
No. 3.....	.70	@	.80
No. 4.....	.75	@	.85
No. 5A.....	nominal		
B.....	nominal		
C.....	nominal		

BOSTON

[FROM OUR REGULAR CORRESPONDENT.]

Paper

Bonds	.07½	@	
Ledgers	.09	@	
Writings	.05	@	
Superfine	.12	@	
Fine	.12	@	
Books, S. & S. C...	.07	@	.07½
Books, M. F.....	.05½	@	.06½
Books, coated	.07	@	
Label	.09½	@	
News sheets.....	4.00	@	
News, rolls	.05½	@	
Manilas—			
No. 1 Manila....$6.75		@	
No. 1 Fibre.....	8.00	@	
No. 1 Jute.....	8.50	@	9.00
Kraft Wrapping....	7.00	@	
Common Bogus....	3.00	@	

Boards

(Per Ton Destination)

Chip	$37.50	@	—
News, Vat Lined...	39.00	@	40.00
Wood, Vat Lined..	47.50	@	50.00
Filled News Board.	40.00	@	
Solid News Board..	42.50	@	45.00
S. Manila Chip....	42.50	@	45.00
Pat. Coated.....	70.00	@	75.00

Old Papers

Shavings—			
No. 1 Hard White	.04	@	.04½
No. 1 Soft White	.03	@	.03½
No. 1 Mixed.....	.07½	@	$8.00
Ledgers & Writings	.02	@	.02½
Solid Books	.01¼	@	$1.35
Blanks	$1.30	@	$1.40
No. 2 Books Light.	.60	@	.70
Folded News, over issues $11.50		@	12.00
Mixed paper.....	.50	@	
Gunny Bagging ...	.80	@	
Manila Rope	.04	@	.04½
Common Paper.....	8.00	@	
Old News.....	.80	@	
Old Kraft.....	1.75	@	

TORONTO

[FROM OUR REGULAR CORRESPONDENT.]

Paper

(Mill Prices to Jobbers f. o. b. Mill)

Bond—			
Sulphite	12½	@	14
Light tinted.....	13½	@	15
Dark tinted.....	15	@	16½
Ledgers (sulphite).	—	@	14½
Writing	11½	@	15
News, f. o. b. Mills—			
Rolls (carloads).	3.50	@	
Sheets (carloads)	—	@	4.25
Sheets (2 tons or over)	—	@	4.50
Book—			
No. 1 M. F. (carloads) 10.00		@	—
No. 2 M. F. (carloads) 9.00		@	—
No. 3 M. F. (carloads) 8.50		@	—
No. 1 S. C. (carloads) 10.50		@	—
No. 2 S. C. (carloads) 9.50		@	—
No. 1 Coated and litho. 15.00		@	—
No. 2 Coated and litho. 14.00		@	—
No. 3 Coated and litho. 13.25		@	—
Coated and litho., colored 15.25		@	—
Wrapping—			
Grey	4.75	@	—
White Wrap.....	5.25	@	—
"B" Manila.....	5.75	@	—
No. 1 Manila....	7.50	@	—
Fibre	7.25	@	—
Kraft, M. F. or M. G.	8.75	@	—

Pulp

(F. o. b. Mill)

Ground Wood.....$25.00		@	$32.50
Sulphite easy bleaching	70.00	@	75.00
Sulphite, news grade.	60.00	@	65.00
Sulphite bleached....	95.00	@	105.00
Sulphate	75.00	@	

Old Waste Papers

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut..	4.00	@	—
Soft White Book Shavings	3.35	@	—
White Bl'k News	2.00	@	
Book and Ledger—			
Flat Magazine and Book Stock (old)	1.45	@	—
Light and Crumpled Book Stock	1.30	@	—
Ledgers and Writings	1.80	@	—
Solid Ledgers...	1.80	@	—
Manilas—			
New Manila Cut.	2.00	@	—
Printed Manilas..	1.00	@	—
Kraft	2.25	@	—
News and Scrap—			
Strictly Overissue	.90	@	—
Folded News....	.90	@	—
No. 1 Mixed Papers	.60	@	—

Domestic Rags—
Price to mills, f.o.b. Toronto

	Per lb.		
No. 1 White shirt cuttings	.09¼	@	10
No. 2 White shirt cuttings	.05½	@	.05¾
Fancy shirt cuttings	.05¼	@	.05¾
No. 1 Old whites	.04	@	—
Thirds and blues	.02	@	.02½
	Per cwt		
Black stockings.	2.00	@	—
Roofing stock No. 1.....	1.25	@	—
No. 2.....	1.15	@	—
Roofing stock Manila rope.....	.04½	@	04½
No. 2.....	.01½	@	—
Gunny bagging ...	.02¼	@	—

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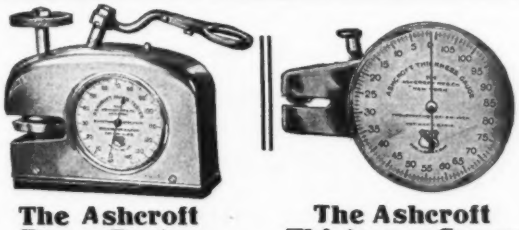

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Minimum rate for advertisements of 25 words or less, first insertion, $1.00.

SITUATION WANTED, 4 cents a word for first insertion and 2 cents a word for each subsequent insertion of same ad. No ad of less than 25 words accepted.

HELP AND MISCELLANEOUS WANTS, and small For Sale Ads, 4 cents a word for each and every insertion. No ads of less than 25 words accepted.

When answering advertisements, please address the Box Number given in ad.

Answers can be forwarded care Paper Trade Journal, and will be promptly forwarded without extra charge. All should be sent to the New York office, 10 East 39th street. And all should be addressed as the advertisement directs in every case and not simply to the paper.

All classified ads for the current issue must be in hand not later than Monday preceding date of publication.

WANTED—Paper Bag and Envelope Salesmen. A Specialty House having recently enlarged its Manufacturing Equipment desires the services of young aggressive salesmen. A broad field and excellent future. Experience and knowledge essential. Write in detail. Address, Box 4638, care Paper Trade Journal. tf

WANTED—Machine Help and Beaterman, Mill in good location. Address, Box 4831, care Paper Trade Journal. M-9

WANTED—Three First Class Machine Tenders and three First Class Back Tenders on modern, high speed 158" Fourdrinier Machine making Kraft and Sulphite. None but first class men need apply. State age and experience, also submit references. Address, Box 4874, care Paper Trade Journal. M-9

WANTED—A first class finisher on Book, Writing and Envelope Papers. Mill located in New York State. Address, Box 4862, care Paper Trade Journal. M-9

WANTED—High grade salesman for selling Pulp and Paper Mill Machinery. Address, Box 4864, care Paper Trade Journal. M-16

WANTED—Man who is familiar with the Paper Mill Trade to sell Jordan Filling, Fly Bars, and Bed Plates. References required. State wages expected. Address, Box 4881, care Paper Trade Journal. tf

WANTED—Two A-1 Asbestos Felt Machine Tenders. Give age, married or single, and references in first letter. Address, Box 4885, care Paper Trade Journal. M-23

WANTED HELP—Two or three men with experience on different types of winders, especially Langstone, can get steady position at paper mill making fine paper. Address, Box 4901, care Paper Trade Journal. M-9

WANTED

A MAN WHO IS NOW EMPLOYED, BETWEEN 30 AND 40 YEARS OF AGE, WHO HAS HAD EDUCATIONAL ADVANTAGES AND PRACTICAL EXPERIENCE IN PAPER MAKING. HE MUST POSSESS EXECUTIVE ABILITY AND HAVE A GOOD RECORD WITH PRESENT CONCERN. NO REFERENCES REQUIRED BUT NAME OF PRESENT EMPLOYERS, DUTIES, EXPERIENCE AND SALARY WOULD BE APPRECIATED AND HELD CONFIDENTIAL. THIS IS AN EXCEPTIONAL OPENING FOR A HIGH-CLASS MAN WITH CHANCES OF PROMOTION. ADDRESS BOX 4897, CARE PAPER TRADE JOURNAL. M-16

HELP WANTED

WANTED—Experienced man to operate roofing plant in Maryland. One that has had experience with Guyton Cumfer Outfit preferred, as assistant superintendent. Must be sober, not afraid of work. For such a man there is a good chance to start with a company just starting to manufacture prepared roofing. Address, Box 4886, care Paper Trade Journal. M-16

MACHINE TENDER AND BEATERMAN WANTED for small cylinder mill in Connecticut. Running on colored specialties. Steady married men over 35 preferred who wish to settle in good town with good schools. Address, Box 4898, care Paper Trade Journal. M-16

SUPERINTENDENT WANTED for 2-machine electrically drawn board mill. Must be able to make all grades of boards, be a thorough mechanic and understand power plant operation and maintenance. Give full details of experience, age, and salary expected in first letter. Address, Box 4899, care Paper Trade Journal. M-16

WANTED—Machine Help and Beaterman. Mill in good location. Address, Box 4900, care Paper Trade Journal. M-30

WANTED—Friction Calender Man, experienced, for coating mill in Eastern Massachusetts. Good position for right man. Address Box 4914, care Paper Trade Journal. M-30

WANTED—2 Machine Tenders, 2 Beater Engineers on new 80" Machine starting. Must be familiar with running and beating Kraft pulp. Reference required. Address, Box 4915, care Paper Trade Journal. tf

WANTED SALESMAN, qualified by previous experience in paper or sundry lines to represent a well established fine paper house doing both warehouse and mill business. Drawing account and commission. State all particulars, absolutely confidential. Address, Box 4902, care Paper Trade Journal. M-9

WANTED—Assistant foreman in finishing room in paper mill making fine sulphite paper. Ability to handle men essential. Good chance for right man. Address, Box 4903, care Paper Trade Journal. M-9

WANTED—Two Cylinder Machine Tenders for 96" cylinder machine running light weight wax paper. Wages 58 cents per hour. Three shifts. References required. Address, Box 4904, care Paper Trade Journal. M-23

SITUATIONS WANTED

PAPER SALESMAN. In New York City who can produce a large volume of business with adequate co-operation, desires connection. Drawing account on Commission basis. Correspondence invited. Address, Box 4635, care Paper Trade Journal. tf

WANTED POSITION—As superintendent. Twenty-one years' experience; used to Specialties, Colors and Wrapping, all grades of Boards and Fibres. Knows how to handle help. Can keep up repairs. Used to Fourdrinier and Cylinder Machines. Address, Box 4786, care Paper Trade Journal. tf

MASTER MECHANIC with 20 years experience desires position. Good record in construction and maintenance in pulp and paper mills in United States and Canada. Best of references. Address, Box 4806, care Paper Trade Journal. M-9

SITUATIONS WANTED

SITUATION WANTED—Engineering draftsman, technical graduate, 12 years' experience, Pulp and Paper Mills, Power House and Hydro-Electric Design. Thoroughly practical and reliable. Address, Box 4815, care Paper Trade Journal. TF

WANTED POSITION—Superintendent open for a position. Have had fifteen years' experience on all grades of Box Boards, Tests, Containers, etc. Familiar with repairs, maintenance, and knows how to handle men. Address, Box 4818, care Paper Trade Journal. M-16

WANTED POSITION as superintendent used to making all Wrapping, Chip and Box Boards and Building Papers, also Filter Paper. Used to cylinder, fourdrinier and Harper machines. Knows how to handle help. 22 years' experience. Can furnish good references. Address, Box 4821, care Paper Trade Journal. M-9

MASTER MECHANIC—Desires position. Twenty years' experience in Mills of all grades of Paper and Pulp; also on Steam, Water and Electric Power. Best references. Address, Box 4765, care Paper Trade Journal. M-9

SUPERINTENDENT wants to make change. Twenty-seven years' experience on News, Book, Writing, Bond, Fibre and Board, also Sulphite and Ground Wood. Always increased the production wherever I have been and put the mill in A-No. 1 shape. 44 years old and can give the best of references. Address, Box 4827, care Paper Trade Journal. M-9

SUPERINTENDENT desires position running Friction or binders board mill. Have had many years of experience. Understands repairs and can superintend building of mill. Can furnish best of references. Address, Box 4828, care Paper Trade Journal. M-16

SULPHITE PULP SUPERINTENDENT—With proven ability for big production at lowest costs, desires position. Would consider offer from concern where production is below the average. Address, Box 4851, care Paper Trade Journal. M-9

CHEMIST—A graduate from a Swedish Chemical Trade School desires position. Two years' chemist service with Swedish Paper and Sulphite Mill, also one year practical experience with several mills in U. S. A. Can furnish best of references. Address, Box 4906, care Paper Trade Journal. M-16

WANTED—Position as Wood Room superintendent, familiar with drums and thorn barker systems. Competent on conveyers, wood machinery, wood stackers and good work. Address, Box 4907, care Paper Trade Journal. M-30

MACHINE DESIGNER—Graduated mechanical engineer, 16 years' experience in paper machines and paper finishing machinery wants position. Address, Box 4908, care Paper Trade Journal. M-23

YOUNG MAN, FIFTEEN YEARS in the paper industry thoroughly experienced on all grades of fine, printing and coarse papers and boards and their uses; 32 years of age, married, now managing executive, desires connection with reputable jobber or mill. Address, Box 4913, care Paper Trade Journal. M-23

YOUNG MAN; SALESMAN, thorough knowlege Bags, Coarse Papers, Tissues and Specialties, desires position selling Paper; prefer small towns around metropolitan district. Address, Box 4879, care Paper Trade Journal. M-9

SITUATIONS WANTED

SULPHITE SUPERINTENDENT with twelve years' practical experience, combined with technical training desires position with a Progressive Concern where ability is recognized. Excellent references. Address, Box 4875, care Paper Trade Journal. M-30

SUPERINTENDENT open for position, experienced on Book, News, Manilla, Specialties and Colors. Am experienced Paper Mill Engineer of ability. Can furnish very best of references. Address, Box 4877, care Paper Trade Journal. M-9

SUPERINTENDENT—Wants position capable of producing counter, heeling Shank and Filler, Board and all kinds of high grade Fibre Boards. Thoroughly understands and can operate all machinery used in making Fibre Boards. Good mechanic. Address, Box 4869, care Paper Trade Journal. M-9

MASTER MECHANIC with 20 years' experience desires position. Good record in construction and maintenance in pulp and paper mills in United States and Canada. Best of references. Address, Box 4889, care Paper Trade Journal. M-16

MACHINE TENDER wishes to make a change from present position. Have had 15 years' experience on all grades of box boards, test and containers. Can furnish best of references. Am strictly sober and steady. Can get production. Address, Box 4891, care Paper Trade Journal. M-9

WANTED POSITION as cook or acid maker and can burn lead. Twenty years of experience, desires employment in U. S. or Canada. Address, Box 4892, care Paper Trade Journal. M-9

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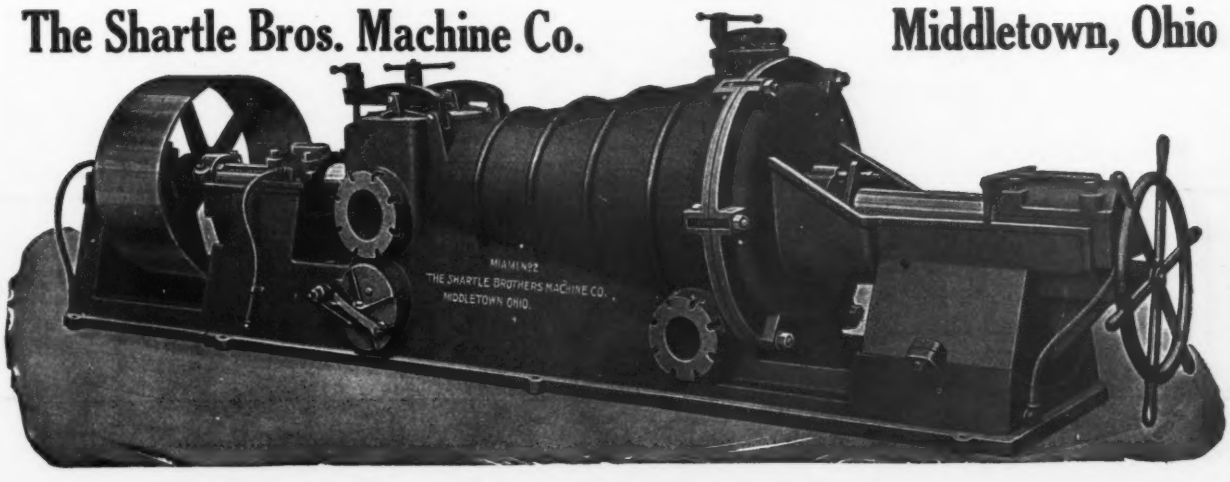

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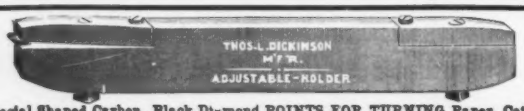

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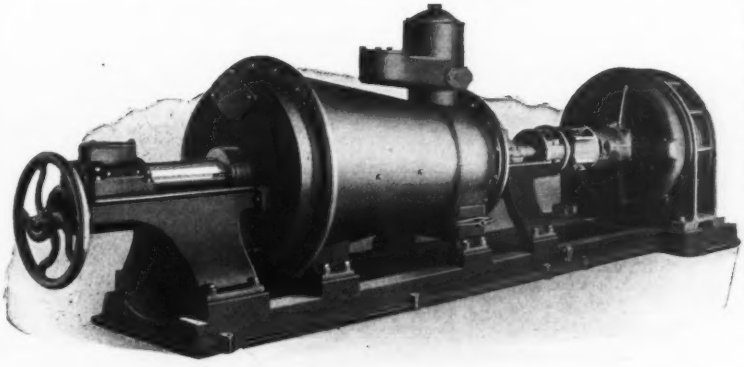

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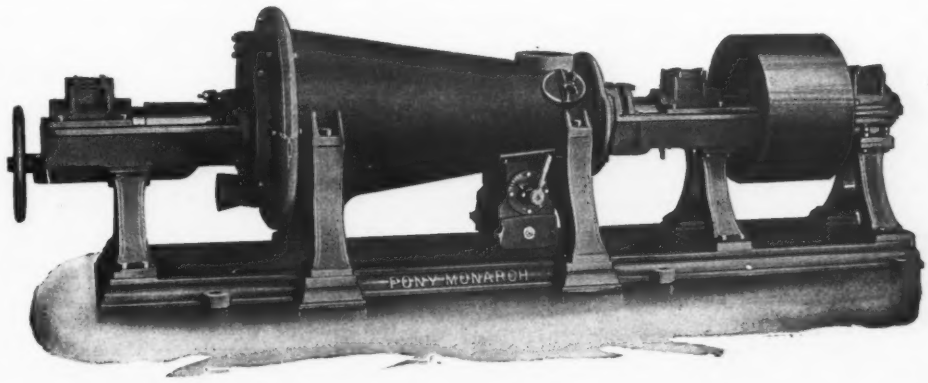

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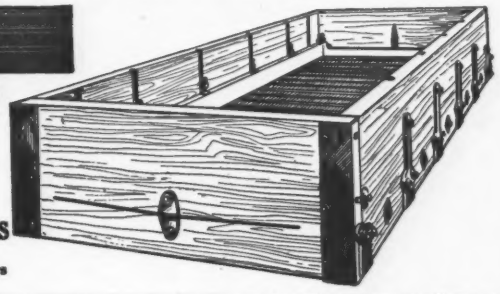

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